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A JOURNAL OF RAILWAY MANAGEMENT, ENGINEERING, OPERATION AND RAILWAY NEWS.
with which are incorporated
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Peace on the Railways

THANKS to the conciliatory attitude which prevails generally between railwaymen and railway managers, the outcome of the prolonged negotiations over the question of the restoration of cuts in pay has been to banish the prospect of strife for the time being. We wish it were possible to say for all time, but only an all-round increase in purchasing power, distributed to individuals generally so as to enable them to make full use of their united productive capacity, can finally exterminate the germ of industrial trouble. Meantime the general public may be thankful for escape from what looked like becoming the danger of a railway strike. Faced with the determined demands of the railwaymen for a restoration of the cuts in pay, regardless of the fact that the additional expense involved had not yet been earned, the managers had to estimate the possible cost of a strike, and no doubt they also carefully considered the effect on railway morale which might be expected as a result of conciliation. It would be a gesture of appreciation of the wholehearted co-operation of the railwaymen during a time of extreme financial stress, and of the undoubtedly hard sacrifices many of them had made. The cost of avoiding strife is calculable and amounts to an increase in the annual wage bill of the railways of about £1,100,000. The cost of a possible strike is hard to estimate, but it might well be more than this sum and its results might be very far-reaching to the nation at a time when Great Britain cannot afford any dissipation of strength. The settlement involves sacrifices, and the shareholders have to make them. It is to be hoped that the burden will be no heavier than the shareholders have become used to bear, but the hopes of a lightening of that burden, which the recent improved railway revenues had held out, must recede again into the background.

* * * *

Ulster Holidays

It is curious that so many holiday makers seem to overlook the existence of Ulster as an ideal holiday centre. Wonderful scenery, the novelty of a sea-crossing without tiresome Customs formalities, and a new country without political upheavals are the almost novel attractions offered. In Ulster itself the transport concerns, admittedly stimulated by fierce competition, are doing their utmost to add yet a further amenity to Northern Ireland in the form of cheap transport. An example of this is a ticket costing £6, which includes a week's stay at the L.M.S.R. Northern Counties Hotel at Portrush, and seven days' travel up and down each day between Portrush and Belfast, a distance of 67½ miles. The holder of this ticket is also able to partake of any meal on the train instead of in the hotel at no extra charge. For ordinary day and half-day excursions extraordinary facilities are also offered. The Belfast & County Down Railway, for instance, advertises trips from Belfast to "Bangor and Back for a Bob." Not to be outdone, however, the N.C.C. will take you in the evening to Whitehead and back (30 miles) for sixpence!

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The Week's Traffics

The railway traffic returns for the past week, like those of the corresponding period of 1933, include receipts on the Monday of August Bank Holiday in every case, while the L.N.E.R. figures cover the Sunday as well. The improvement of £15,000 in this company's passenger takings is noteworthy. The declines of £7,000 and £6,000 in the passenger receipts of the L.M.S.R. and G.W.R. respectively may be accounted for by the unsettled weather prevailing on the Bank Holiday itself. The most satisfactory feature of the figures is the increase in goods and coal receipts on all lines except the Southern Railway, which with its intensive holiday passenger traffic is naturally less likely to share in such a phenomenon. The rise of £41,000 in the case of the L.M.S.R. is the most outstanding indication of the general trend. The combined receipts of the group companies for the 32 weeks of this year total £90,478,000, as against £86,534,000 last year.

	32nd Week				Inc. or dec.	
	Pass. &c.	Goods, &c.	Coal, &c.	Total.	Year to date	
	£	£	£	£	£	%
L.M.S.R. ..	− 7,000	+ 41,000	+ 18,000	+ 34,000	+ 1,666,000	+ 4·79
L.N.E.R. ..	+ 15,000	+ 6,000	+ 11,000	+ 21,000	+ 1,593,000	+ 6·35
G.W.R. ..	− 6,000	+ 3,000	+ 2,000	− 3,000	+ 414,000	+ 2·81
S.R...	+ 3,000	− 2,000	− 3,000	+ 1,000	+ 271,000	+ 2·26
	*	*	*	*		

Listening to Electricity

We do not know whether familiarity with things electrical has yet caused the once popular practice of "tasting" flash lamp batteries to die out in our schools. All those who can remember the satisfaction of obtaining sensory evidence of the presence of the unseen force by applying the tongue to the terminals, and savouring the reactions produced by the slight shock so administered, will regret it if it has, and they will covet the experience of the author of an article in the August number of *Pennyfare*, to whom it was actually given to hear, in the form of a loud and mysterious "knocking," the result of switching on a current of 2,500 ampères. The current was applied

during the night to the conductor rails of the Inner Circle line between Aldersgate and Farringdon Street stations. The author, stationed alone amid the gloom and silence of the trainless tunnel, was inspecting the operation of some fault detecting apparatus. Three times the bank of indicating lamps flashed up to show that the switch had been closed, and on each occasion a loud "knock" echoed through his retreat. He advances the theory that the instantaneous rise from zero to a high potential caused the magnetic field surrounding the conductor to be sufficiently strong to provoke a slight movement in the adjacent running rail, or in the conductor rail itself, so producing the sound.

* * * *

A Southern Railway Gift to Windsor

The Royal Borough of Windsor enjoyed an unusual benefit resulting from the electrification of its Southern Railway train service when, on June 1 last, Mr. F. H. Willis, Secretary of the company, publicly presented to the town authorities the deeds of a strip of land bordering the river, now the site of a new Thames-side promenade providing a continuous thoroughfare from Windsor Bridge to Romney Lock and beyond. The history of the ground thus opened up to the public is outlined in the August *Southern Railway Magazine*. Although the L.S.W.R. authorities, after the construction of the steam-worked Windsor branch, had listened sympathetically to proposals for the return of this piece of land to the borough, they had been unable to agree to them owing to the possibility of complications when expanding traffic demanded an extension of the already exiguous station site. Electrification, however, has not only given Windsor a much improved train service, but enabled it to be done without encroaching upon the riverside property. The new public pathway, known as Romney Walk, was officially opened by Col. W. J. Waldron, who had borne the cost of its construction. Two bronze plaques on the entrance gateway record the acquisition of the promenade by the town and the date of the presentation of the land by the Southern Railway, which has happily proved that transport facilities and public amenities of a more leisurely kind need by no means be incompatible.

* * * *

From Tube to Mountain Summit

There is something of novelty in a railway which begins its course as a city tube, and ends as a mountain line 1,540 ft. above sea level, attained in 8½ miles. This is the Holmenkol-Tryvandsbanen, an electrically-operated urban railway of Oslo, Norway. Originally starting from Majorstuen, in the western suburbs, the railway has now been driven under Oslo to a terminus at the National Theatre, in the heart of the city. From here access is gained, in a run of half-an-hour, including numerous intermediate stops, to the summit of the Tryvand ridge, where the viewpoints of Holmenkollen and Frognersaeter are the finest in the neighbourhood of Oslo, while throughout the winter ski-ing is vigorously pursued. To Frognersaeter a 15-minute service is run throughout the day; capacious electric cars are used, each accommodating 68 persons seated, with the help of exceptional width, which permits three to sit abreast on each side of the central vestibule. The line, which is double-tracked throughout, serves residential areas on the west side of Oslo, and a branch from it, over which a five-minute service is run, provides communication between the suburb of Smestad and the centre of the city. A new branch is now being constructed to serve the northern area of Oslo, and the tube section between Majorstuen and National Theatre will then be very busily occupied.

The M.Z.A. in 1933

The results of the working of the Madrid-Zaragoza-Alicante Company's system for 1933 are now available and show operating receipts to have been 283,165,381 pesetas, with receipts from other sources at 2,166,980 pesetas. Passenger traffic brought in 74,482,747 pesetas and goods 208,682,634 pesetas. The drop as against 1932 was 185,158 pesetas for passenger traffic and 4,312,858 pesetas for fast goods, 1,804,119 pesetas for slow goods and 333,669 pesetas from miscellaneous sources. There was a slight gain of 7,219 pesetas from charges made in connection with the traffic, such as demurrage. Total operating and other charges, with pensions, rose by 11,107,563 pesetas over the previous year, amounting to 308,301,261 pesetas, so that there was a loss of 22,968,900 pesetas, or about four times as much as in 1932. Although the fall in gross receipts was not so great (2·27 per cent.) as on some European lines, the position is evidently serious. The expenditure on new locomotives and rolling stock was 8,214,589 pesetas, but of this 8,166,816 pesetas are covered by advances from the State. Higher prices of coal and materials and the eight-hour day at stations account for much of the increased expenditure. The company has had to pay during the year 49,156,292 pesetas to the State in taxes and other charges, while the Government has also benefited by special rates for military and other traffic to the extent of 11,441,374 pesetas, these sums totalling about 21 per cent. of the gross receipts.

* * * *

Railway Development in Turkey

At the foundation of the Turkish Republic in 1923, on the termination of the Greek war, the new Government found itself possessed of a most disorganised railway system, with routes ill suited to the requirements of the country and equipped with worn out stock and track. An energetic policy of reconstruction was adopted and the results have been creditable to the new administration. Nearly 2,000 km. of new lines have been built and the Anatolian and portions of the Baghdad lines on Turkish territory, 1,032 and 589 km. long respectively, have been taken over by the State. The old companies had been content to build lines from points on the coast to districts with which they wished to encourage trade and inner Anatolia was almost neglected. The new policy has aimed at constructing through routes from east to west, one in the north and the other in the south, with a new main north-south route from the Black Sea to the Mediterranean. Many millions have been expended on these plans, and the sketch map and article on pages 282-3 give some idea of the enormous developments of the last decade. German technical advice and equipment have been extensively made use of, for rolling stock, track, and signalling. At the Bruchsal works in 1927 we were able to inspect an excellent model railway working in conjunction with full sized signalling apparatus and intended for a Turkish railway operating school.

* * * *

Holland Abandons the White Light

On July 16 the Netherlands Railways abandoned the white light for "proceed" and adopted green, the green lights in the distant signals, hitherto used to indicate "caution," being replaced by yellow. A change in this respect had often been proposed, but it was not until recent years that it was considered that a really satisfactory third colour had become available for the on position of the distant signals. It is interesting to note that the new coloured glasses have been obtained in Great Britain, it being felt that the experience gained here and the speci-

fications adopted should be made use of when making such an important change. Not only will the drivers now have a positive night signal for "proceed," as in most other countries, but further advantages will be achieved. Under the old system, when a home and a distant signal were on the same post and the top arm was cleared, the white "proceed" light had a tendency to drown the green "caution" one beneath. The same effect was produced in the three position junction distant signals when indicating that reduced speed was called for at the home signal, the lights in that case being green beside white. With the new system the warning yellow light will naturally be more visible than the green, and this will make for greater safety, although it is but fair to add that no accidents attended with loss of life have, we understand, occurred in Holland attributable to the use of white signal lights. The blue back lights, hitherto shown when signals were on, have been replaced by small white lights, similar to the practice long followed in this country. (This change, of course, modifies our remarks in the editorial note on page 131 of our issue of July 27 as to signal back lights in Holland.) The signals used by the permanent way staff are, naturally, being correspondingly altered and white lights will now be seen only in subsidiary signals, such as those on water columns.

* * * *

The Future of Railways

Mr. L. F. Loree, President of the Delaware & Hudson Railroad, spoke optimistically on the subject of the railway outlook at a conference recently held in Newark, N.J. He said he was not troubled about the future of the railway business as a whole, since the railway still furnished the best and cheapest land transportation service available. He held the view that, with the elimination of unprofitable mileage, stations, and other facilities which are no longer productive, they will in time, if left alone, work out their problems and make a full recovery. With regard to competition in the air and on the roads, he remarked that the aeroplane was hardly an efficient carrier, as it was impossible for individual machines to be heavily loaded, whilst, so far as highway competition was concerned, he thought that the passenger business lost to the railways was mostly accounted for by the extension of private car ownership, motor buses not having, in his opinion, much of a future. Mr. Loree made a pertinent contribution to the question of motor lorry transport by saying, "You can't kill 32,000 people a year without somebody, someday, saying you have got to stop!" Asked whether he considered that the internal combustion engine such as is employed in most of the streamlined trains to-day was likely to replace the steam engine, he replied that about half the weight of the streamlined trains was in the engine, and it was difficult to realise what a problem was constituted thereby. He concluded by remarking that "the steam people have been awakened at last and are making very great progress."

* * * *

Permanent Way

In a highly practical article by Mr. H. Borrowdale on "The Design of Railway Switches and Crossings," the first instalment of which appears in *The Edgar Allen News* for August, the author remarks that, from the manufacturers' point of view, the words "permanent way" are becoming very nearly literally true as renewals become less frequent owing to the improved quality of the materials used and the methods of maintenance on the track. He adds that the origin of the term "permanent way" is unknown, but we think it is not really wrapped in any mystery at all. In the early days of railway construction temporary lines were laid down by the contractors for conveying earth excavated from cuttings to the sites where it was to be deposited to form embankments, and also for the movement of constructional plant and material. This temporary way was hastily and roughly laid, but was sufficient for its purpose and remained the only means of transport until the formation was ready for the permanent way on which the regular service of trains was to run. Hence the term. In most of the few instances of new railway construction at the present time the same method is followed, although, such is the footing obtained by the motor lorry that there have been cases, particularly in America, where railway construction of considerable magnitude has been carried out entirely without the use of railway lines.

* * * *

The Virtue of Cleanliness

In a leading position among the factors which combine to make machinery attractive even to the non-technical observer is that of cleanliness. If we analyse the qualities in the engine-room of the paddle steamer which prove so irresistible a magnet to excursionists of all ages, even outweighing the perils of an oily atmosphere to the landsman's stomach, we must come to the conclusion that it is the spotless and shining condition of the massive moving parts that is half their fascination. Similarly, it has in the past been the care bestowed upon the livery of our locomotives, particularly in the case of express classes, which has added the final touch to graceful proportions, and captured the spectator's admiration. Yet to-day locomotive cleaning appears to have fallen fairly generally upon evil times. We publish this week a letter from a correspondent who draws attention to a case of neglect which is as singular as it is unfortunate. The L.M.S.R. *Royal Scot* has achieved the status of a national symbol to the North American continent. It would be unpleasant to imagine that the motive which kept the engine so well groomed during its travels on the other side of the Atlantic was showmanship and not pride in British engineering. If other arguments fail, locomotive running superintendents cannot afford to overlook the psychological reaction to dirty locomotives of a public which has learned the virtue of cleaning in machinery through the motor car.

* * * *

General Utility Locomotives

The new 4-6-0 mixed traffic locomotives of the L.M.S.R., of which illustrated particulars appeared in our last week's issue, are officially described as general utility engines. Such a term implies rather more than a mixed traffic category, although virtually it has the same meaning in practice. We remember very well a conversation we had a few years ago with Mr. J. H. Follows, then Chief General Superintendent, L.M.S.R. He emphasised the need of a locomotive which would "go anywhere and do anything." Although recognising himself that this was almost an impossibility, he insisted that an engine with a wider range of activity than any existing class would do much to solve some of the more acute railway traffic problems. It is, indeed, hard to visualise a type of locomotive that could give equal satisfaction on heavy expresses and loose coupled goods trains. Any engine would certainly show to greater advantage on some duties than on others. If, however, it could put up an average performance which justified its use in several different classes of railway service, due regard being paid to economy as well as efficiency, then it would be well worth while to employ it in such a widespread fashion, and the general utility locomotive might be said to have arrived.

A French Railway Guide

SOME time ago, we advocated in these columns the publication jointly by the railway companies of this country of a popular guide to the bewildering range and variety of facilities, now almost amounting to an *embarras de richesses*, offered to the travelling public and the trading community. Some steps in this direction were subsequently taken, and were welcomed by us at the time, although so far nothing even so comprehensive as the summary guide to Post Office facilities, issued at a penny, has been produced by the four main line railway companies. Our neighbours the French are not usually regarded as conspicuously progressive in publicity matters, but it is evident that the same need has impressed itself upon railway administrations of that country, and it has resulted in the production on behalf of the "Grands Réseaux de Chemins de fer Français" of a useful little booklet entitled *Guide pratique du Voyageur*, a copy of which lies before us. Each of its 48 pages is devoted to the explanation in terse and graphic phrases, aided by clever and amusing illustrations, of a particular facility offered by the French railways and its cumulative effect is to provide a simple *vade-mecum* for the traveller on business and pleasure. It is a move in the right direction. If you want to sell anything, in this case transport, you must make it widely and easily known, and while our railway companies' handbooks, posters, handbills and other methods of publicity are in themselves admirable, and their total effect almost overwhelming, the general public still lacks a handy popular guide, sponsored by the four companies, which will explain in simple language all the different facilities available and give practical examples, and which will circulate literally by the million.

* * * *

Parcels Traffic

THE Ministry of Transport annual returns show that in 1933 the four main line railway companies dealt with 91,197,171 small parcels under 2 cwt. in weight, the revenue being £6,663,104, an average of 1s. 7·54d. a unit. Compared with 1932 these figures represent the remarkable increase of 11,206,988 parcels or 14 per cent., but as the receipts only increased by £218,917 or 3·4 per cent., the average receipt per unit declined by 1·79d. or 9·3 per cent. When comparison is made with the volume and revenue of the traffic conveyed in 1929, the figures are even more striking as, while the number of parcels dealt with in 1933 increased by 12,195,086 or 15·4 per cent. compared with that year, the revenue actually declined by £426,981 or 6·4 per cent., and the average receipt per unit dropped by 4d. per package, a decrease of 22·8 per cent.

It is obvious that the parcels business of the railway companies was affected to a considerable extent during 1933 by the very large number of small parcels, mainly books, which were forwarded in connection with newspaper gift coupon schemes, as well as the extensive traffic secured from firms distributing small packages, catalogues, samples, etc. The conveyance of increasing numbers of parcels of this description weighing only a few pounds necessarily reduced the average receipt per unit seeing that the Ministry figures cover all parcels weighing up to 2 cwt. It is interesting to note, therefore, that when evidence was being given on behalf of the railway companies before the Railway Rates Tribunal in March last, during the consideration of the first applications for agreed charges, it was made clear that the railways did not desire to compete with the Post Office in connection with the conveyance of very small parcels. In fact, the conditions generally applicable to the introduction of agreed charges stipulate that the trader is not to be precluded from forwarding small packages of his traffic by parcels post if he so desires.

While this was probably the main factor, there is little doubt that the growing tendency of traders to reduce overhead charges by carrying smaller stocks and ordering supplies more frequently in smaller consignments, has had a material influence upon the earnings per unit. Other contributory causes may have been the general decline in business with Ireland consequent upon the political situation, the possible transference of parcels business from passenger to freight train service by reason of the general accelerations which have been effected, a reduction in weight of package conveyed, and the introduction of new methods of packing which combine lightness with security. Finally, it should not be overlooked that the applications made to the Rates Tribunal during the year for the approval of a large number of exceptional rates for such perishable traffic as cut flowers, rabbits, cakes and pastries, undoubtedly tended to reduce earnings although, had the traffic not been secured at these lower rates, the decrease in revenue would have been decidedly larger.

* * * *

A Brighter Station for Harrogate

FOR some years the brighter railway station movement, so ably and consistently led by the London Underground, has been gaining adherents. As will be seen by the article and illustrations on pages 280 and 281 of this issue, the management of the L.N.E.R. is among its practical supporters and have lately taken the opportunity of applying its principles in the reconstruction of the station at Harrogate. Briefly stated, these may be described as the banishment of gloom by day and night, with its attendant dirt and dust, and the planning of buildings and offices to allow the most unfettered circulation of passengers and the closest possible contact between them and the staff. The ticket window, in short, becomes the sales counter, instead of a dog-kennel like aperture framing the disembodied features of the booking clerk. When it comes to radical alterations such as these, the path of the railway moderniser is strewn with difficulties, for he has inherited a terrible legacy from the past. The Victorian era was a period of material progress when mankind discovered that greater wealth followed the cult of the purely utilitarian than the cult of the artistic. It was during this time that the railway system came into being, and the energies of the early railway administrators were devoted almost exclusively to producing efficient locomotives, improving signalling, and constructing a solid track. The stations followed the general lines of the architecture of the time, and were dull and uninteresting, for if railways were an essential, embellishments in stonework would not add a pound to receipts. So argued Victorian railway managements and municipalities, and the opportunity was lost of erecting stations which, in those wealthy days, might have vied in architectural quality with minsters, town halls and university buildings.

In this twentieth century, where it is more perfectly realised that science and art are not conflicting phenomena, who would deny that amenities can contribute to revenue? If railway stations are dull and depressing, if railway stock is uncomfortable and shabby, the public will regard travel by rail as a burden to be endured only when the private car and the omnibus are not available. The importance of these factors in rolling stock has been more widely recognised than in the case of railway stations, rolling stock wears out more quickly and it is always more attrac-

tive to construct *de novo* than to convert. Putting a new patch on an old garment has never been popular, but the improvements carried out by the L.N.E.R. in pursuance of the brighter railway station movement at Harrogate show how effective a little ingenious conversion can be. Harrogate station is fortunate in having a fairly large curtilage around it, but in the past the area and the station premises have been surrounded by railings which have almost hidden them from the public view. As a result of conferences between the municipality and the L.N.E.R., these railings of Victorian solidity have been demolished, and in their place gardens have been built and laid out with all the horticultural artistry for which Harrogate is becoming famous. Recognising that courtesy and a smart appearance are two essentials of salesmanship, the motive underlying the alterations at Harrogate have been throughout the creation of an attractive and convenient centre for the transaction and promotion of transport business. The extent to which the plan has succeeded can best be judged from the illustrations and description elsewhere in this issue.

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Metallurgy of the High-Pressure Boiler

THE adoption of higher steam pressures in locomotive boilers has led, more or less compulsorily in advanced cases, to a revision of the specifications of the materials used. It has been found advisable, in the interests of maintenance and also to effect a reduction in weight, to utilise higher grade steel plates and to resort to welding instead of riveting at various points. In this connection the report on locomotive construction recently issued by the Mechanical Division of the American Railway Association provides some interesting reading, based as it is on the experience of several of the leading railways in the United States with locomotive boilers carrying moderately increased steam pressures. The report states that the Lehigh Valley Railroad has eleven locomotives operating at 250 lb. per sq. in. boiler pressure and a similar number at 255 lb. The first of these locomotives was placed in service about three years ago and the entire boiler, with the exception of the material entering into the construction of the thermic syphons and smokebox plates, was of nickel steel. The fireboxes and combustion chambers were all welded, thus eliminating the use of rivets. With the exception of one row above the foundation ring, where there are hollow drilled rigid bolts, the staybolts are of the Flannery two-piece flexible type, also hollow drilled. So far these boilers have given very good service with practically no maintenance costs, whilst in no case has there been any trouble with the fireboxes, with the exception of one small crack in an inside throat plate. The railway company contemplates purchasing some additional locomotives on which the boiler pressure will be 275 lb. per sq. in., and it is the intention to have these boilers designed very much on the same lines as those of the 22 now in service.

The Missouri Pacific Railway has 8 locomotives of the 2-8-2 type in service carrying 250 lb. steam pressure. The boilers of these engines are built of boiler carbon steel and have so far given the best of results with no increased maintenance costs. Five of them have been in passenger service for seven years and the others four years. There are also on this system twenty-five 2-8-4 type engines carrying 240 lb. steam pressure which have been in freight service for four years. In this case the boilers are constructed of conventional boiler carbon steel and the repairs have been no greater than on boilers carrying lower boiler pressures. The New York Central reported in 1932 that it had equipped two 4-6-4 type locomotives with boilers built up of nickel plates and carrying 225 lb. steam pressure. Since that time these two engines have been overhauled in the shops and the indications are that, up to the present time, equally good service may be expected from nickel steel as from the regular specification steel, with a considerable reduction in weight. The Pennsylvania Railroad also has some nickel steel boiler barrels in use, but these have not been in service sufficiently long to furnish definite information as to their life and performance. This company also has some special staybolt material on trial but up till now it has not changed its standard. The boiler pressure has been 250 lb. for a number of years, and this has not yet been exceeded. The Union Pacific Railroad has not, so far, introduced locomotives carrying boiler pressures higher than 220 lb., but it has 88 engines of the 4-12-2 three-cylinder type, the boilers of which carry this pressure, and the engines have been in service for periods of from four to six years. The boilers are of the conventional radial stay type, using plain carbon steel plates, and it is reported that their performance has been very satisfactory. New locomotives to be built for this company will probably have 250 lb. or even 275 lb. boiler pressure.

The report, which was signed by Mr. G. H. Emerson, Chief of Motive Power and Equipment, Baltimore & Ohio Railroad, as Chairman, refers also to some large locomotive boilers used by one of the American railways in which the material used was carbon steel, with staybolts and radial stays of wrought iron. From experience with the engines so fitted it was believed that to obtain greater economy and best operating service the steam pressure should not be less than 250 lb. Some reference is also made in the report to multiple-pressure locomotives, and particularly to the 2-10-4 Canadian Pacific 250-850 lb. three-cylinder oil fired engine No. 8000. Details in the construction of this locomotive have shown clearly how metallurgical developments have made possible the satisfactory use of materials which would have been out of the question a few years ago, and experience proves that stainless steel for valves and valve seats has surmounted the limitations of bronze and the corrosion of ordinary steel, whilst stainless steel baffle plates for protecting direct oil flame contact with the drums has also proved satisfactory. Low carbon nickel steel for seamless drum construction has combined a high factor of safety with low weight, and nickel steel boiler plates in the low pressure boiler have also given the necessary strength with approximately 30 per cent. lighter construction.

REDUCING WEIGHT OF AMERICAN ROLLING STOCK.—Some new coaches now in course of delivery for the Chicago, Milwaukee, St. Paul & Pacific Railroad are notable for the great reduction of weight over previous similar vehicles, due almost entirely to the adoption of welded construction. The coaches are 80 ft. 8 in. long overall, 10 ft. wide and 13 ft. high, and weigh 96,000 lb. (43 long tons). This may be compared with a total weight of 146,000 lb. (65 long tons) of the previous coaches of the same size embodying riveted steel construction. The new cars are tubular in shape and have no external projections beyond the outside body panelling. The seating capacity of these coaches is only 54 as compared with 78 in the conventional coaches, and this, together with the provision of the most up-to-date lighting, heating, and ventilation, is in accordance with the latest American policy of making railway travel as attractive as possible. One advantage of the railway over the road is the ability of the former to provide plenty of room much more economically than it is possible for the latter to do.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

Summer Tickets

Tisbury, Wilts.
August 3

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Referring to your editorial note in the correspondence columns of your issue of August 3, may I give an example of the promptness of the Southern Railway in giving a quotation for a through summer ticket? Two days ago I sent a post card to the stationmaster at Tisbury asking the price of a summer ticket to Standon, L.N.E.R., and within a few hours of his receiving my post card, I was in possession of the required information. Standon is a small station on a small branch of the old G.E.R.

Yours faithfully,
REGINALD B. FELLOWS

The 24-hour Clock

12, Mission Row, Calcutta.
July 11

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—You have recently been writing about the B.B.C. experiment with the 24-hour clock, and have mentioned the public opposition to that system as applied to railway time-tables.

The time-tables of all Indian railways have for many years been printed on the 24-hour system and public opinion has not been at all perturbed, although in Calcutta and in other centres there is the additional complication of two distinct sets of times—standard (all-India) time as used on the railways, and local sun-time—Curzon's time and God's time.

Can it be that public opinion is more intelligent in India than it is in Britain?

Yours, etc.,
D. Y. ANDERSON

Polebrook House, Golden Square,
London, W.1.
August 13

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I was interested to read in your issue of August 10 your editorial dealing with the 24-hour clock system, and I can confirm that I have received no single complaint from any source regarding the use of the 24-hour clock in the "Airway Time Table."

I think the reason is that the modern traveller has become so much more internationally minded than hitherto that this system is accepted as the only reliable and automatic one, for, as you rightly point out, it is a safeguard against a printer's error, and the eye does not have to travel to the top of a column, say, to find out if the time given is day or night, morning or afternoon.

Yours faithfully,
R. N. MARTINEAU,
Proprietor,
"The Airway Time Table"

Dirty Locomotives

London, August 4

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Before the war it was customary to make invidious comparisons between the condition in which foreign locomotives were kept, with an outer coating compounded of coal-dust, grime, and oil, and the spotless cleanliness of British locomotives in general, and express engines in particular. The boot appears now to be on the other leg. Only the Southern Railway seems to give all-round attention to locomotive cleanliness; Great Western and the London & North Eastern engine-cleaning, like the curate's egg, is "good in parts," though in the latter case a bad decline is seen as one crosses the frontier from the Southern Area to North Eastern Area at York; while on the London Midland & Scottish, with the honourable exception of certain sheds, the cleaning of locomotives appears to have ceased entirely. Recently I saw the famous locomotive *Royal Scot*, concerning which such columns of space have appeared in the press since its adventures in America, so dirty that the commemorative plate above each driving splasher was barely legible, and with the bell presented by Canada, and carried above the buffer-beam, half buried in cinders. One wonders what would be the comments of any visiting Americans, who saw the effulgent progress of *Royal Scot* through their country only a year ago, on viewing this grimy relic. Surely it is worth while to devote a little attention to the preservation in a moderately decent state of cleanliness of so historic an engine as this? And as regards the rank-and-file of our locomotives, why paint them at all if they are to be allowed—in a matter of *months* only nowadays—to lapse into such a deplorable state of filth as is commonly seen? In my judgment this is a mistaken economy. Apart from the publicity value of smart locomotives, the average enginemen, whether there be double-manning or treble-manning or not, will take more care of an engine that is in good condition than of one whose appearance seems to indicate that nobody cares what condition it is in; and the radical change which has taken place on many of the Continental lines in this respect appears to show that this point is appreciated. If the voice of your influential journal could be raised in this matter, you would be doing a real service to some of us who still have an affection for the steam locomotive.

Yours etc.,
VERITAS

"Central Africa"

His Majesty's Eastern African Dependencies,
Trade & Information Office,
Grand Buildings, W.C.2.
August 10

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—With reference to your issue of May 4, the General Manager of the Tanganyika Railways has drawn my attention to your columns dealing with Overseas Railway Affairs, the headings of which are inclined to be confusing.

Take the heading, first line, "Central Africa and Tanganyika Railways." The term "Central Africa" has always been used to apply more to countries such as Nyasaland, part of Northern Rhodesia, Belgian Congo, &c. (although now the two former territories are also included in the group represented by this office), whereas Tanganyika has always been part of the East African group. It would, therefore, have been better to have made the heading simply "Tanganyika Railways," as you refer only to these.

Lower down, in the statistical information, items called "Central" and "Tanganyika" should really be "Central Line" and "Tanga Line," as these are two different lines but both are part and parcel of the Tanganyika Railway system.

The General Manager of the Tanganyika Railways is of the opinion that in the way that it has been put people will be apt to think that it refers to the Central African Railway, which is part of the Nyasaland Railway Line, whereas really it refers to two different railways both of which are part of the Tanganyika system.

Yours faithfully,
(Sgd.) C. H. DALE,
Commissioner

PUBLICATIONS RECEIVED

List of Members, Institute of Transport. London: 15, Savoy Street, W.C.2. 9½ in. × 6 in. 166 pp. Price to non-members, 2s.—This list, which is up to June 1, 1934, is specially to be commended for the useful geographical list of members at the end.

Guide to Current Official Statistics of the United Kingdom. Vol. XII, 1933. London: H.M. Stationery Office, Kingsway, W.C.2. 345 pp. 9½ in. × 6 in. Price 1s. net.—The inquirer who wishes to ascertain what figures are available on a particular subject, and where they are to be found, needs an alphabetical index to the contents of all official publications containing statistics. This need is met by the annual "Guide to Current Official Statistics," Vol. XII of which has just been issued. It consists of a systematic index to the statistical publications of 1933, with details of the contents.

Statistical Year Book of the League of Nations, 1933-34. Geneva: Société des Nations, Service des Publications. London: Allen & Unwin (League of Nations Publications Dept.), 40, Museum Street, W.C.1. 7½ in. × 9½ in. 299 pp. Price, paper covered, 10 Sw. frs. (10s. sterling); bound, 12.20 Sw. frs. (12s. 6d. sterling).—As in previous issues, the Year Book consists of a synopsis of the most important economic, financial, demographic, and social phenomena. In most of the statistical series figures up to the end of 1933 are given, and many of them cover the first quarter of 1934. There are tables dealing with international trade, shipping, freight rates, and railway goods traffic.

Economic Conditions in Belgium in 1933. Report by N. S. Reyntiens, O.B.E. (Commercial Counsellor to His Majesty's Embassy at Brussels. 1934. London: His Majesty's Stationery Office, Adastral House, Kingsway, W.C.2. (Issued by the Department of Overseas Trade). 9½ in. × 6 in. Pp. 148. Price 4s. net.—This report on Belgian trade, industry, and the social questions arising therefrom was prepared some time before the recent programme of widespread railway accelerations came into force, with the result that some of the pages dealing with communications are already out of date. A table of best times by train between Brussels and certain other Continental cities records a 100 min. booking to Liége, whereas this has now been cut to 72 min. The time shown of 3½ hr. to Paris has been reduced to 3 hr. 14 min. by the Etoile du Nord, and on its return journey the same express runs between the two cities in 3 hr. 11 min. The Etoile du Nord also shortens the old time of 4½ hr. to Amsterdam to 3 hr. 40 min.

Similarly, the notes on railways in the Transport and Communications section are interesting as a statement of policy rather than as a record of developments now in progress. It is to be noted that the Belgian National Railways are fully alive to the possibilities of travel by train as a form of recreation, having organised "trains-promenades" which run at reduced speed in districts of scenic interest, calling at stations adjacent to beauty spots, and "surprise-trains" to destinations which are not revealed before the time of departure.

The report concludes with a summary of economic conditions in the Grand Duchy of Luxembourg.

F.B.I. Register of British Manufacturers, 1934-35. London: Federation of British Industries, 21, Tothill Street, S.W.1. 9½ in. × 7 in. × 1¾ in. Pp. 518. Price 15s.—One of the many useful functions of the F.B.I. is the annual production of its Register, the 1934-35 edition of which has just been published. As a reference book of British manufacturers of repute it provides a wonderful *vade mecum* for both the home and overseas buyer. In addition to an alphabetical list of firms connected with the Federation, there is a separate section in which firms are classified under the products or services they provide. Another useful section is that devoted to brand and trade names, and trade marks. A full list of the officers and the members of the grand council, detailing the interests they represent, is included.

Engineering Drawings Specifications and Quantities. By J. Marshall Rodger, B.Sc. (Eng.), Lond., A.M.Inst.C.E., A.M.I.Mech.E. London: Ernest Benn Limited, 154, Fleet Street, E.C.4. 10 in. × 6½ in. 276 pp. Illustrated. 21s. net.—This book is intended to assist students working for the associate membership examinations of the Institution of Civil Engineers, in which papers are now set upon drawings, specifications, and quantities. Chapter I deals with working drawings, stating the scales to which they are usually drawn, and giving the drawings and details required for parliamentary plans. The general meaning and liabilities of a contract are next discussed, followed by a setting forth of the usual clauses in conditions of contract, with explanatory notes. The matters in which the engineer's decision is final are clearly set out, as well as the procedure to be adopted in the event of disputes and differences upon points where his decision is not final. The specification is next dealt with under the separate heads of workmanship and materials, the usual clauses are given in detail, and notes are added in elucidation. A useful inclusion is the proportions of materials required for various strengths of concrete. In the section upon materials the tests for cement are given, as well as the British Standard Specification for certain materials and plant. Chapter VI gives some general specifications for engineering plant as issued by various manufacturers, covering cranes, boilers and so on, with detailed drawings. The last section of the book deals with quantities, of which the essentials are clearly explained, and several questions set at the Institution of Civil Engineers examinations are worked out in detail. A typical Form of Tender and a Day-work Schedule are included, and the book ends with an index and some examination drawings. The author does not claim to have referred to every material or class of workmanship, but he hopes that he has given to students and others a useful guide for dealing with matters not mentioned, as indeed he has. It may comfort student readers of this book to realise that what in a textbook seems difficult, even terrifying, is usually taken in the stride of actual practice without a tremor, and that with a good and reliable contractor few of the possibilities of trouble will step beyond the pages of the textbook.

Key-Words to the Metallurgy of Steel. By G. A. de Belin, A.Met., and E. E. G. Bradbury. Second Edition. London: The Louis Cassier Co. Ltd., 22, Henrietta Street, W.C.2. 5¾ in. × 4 in. 9d. net.—To those in railway engineering and stores departments who have to deal with ferrous metals, this little handbook of the technical and scientific terms used in the iron and steel industry is likely to be of considerable value. It does not confine itself merely to the explanation of the many terms used in connection with the various qualities of iron and steel, their manufacture, heat treatment and structure, as well as of the plant used in their production, but in a very concise and simple form adds so much useful information on the subject that the authors may rightly claim this to be a handbook rather than a mere dictionary. It concludes with a representation of the iron-carbon diagram, a diagram representing the micro-constituents of steel, and a table of elements, compounds, and reactions in steel manufacture.

Welding of Locomotive Fireboxes.—We have received from G. D. Peters & Co. Ltd., Windsor Works, Slough, a folder dealing with the electric arc welding of steel fireboxes for locomotives by the Plastic-Arc process. The manufacturing advantages claimed for the Plastic-Arc process used in conjunction with Colour-Tipt electrodes include lightness and great strength, the entire firebox including the tubes can be welded, the tubes are permanently fixed in the tube plates, making leakage impossible, working pressure can be increased without added maintenance, fireboxes can be assembled and welded in position. Additional advantages are low initial cost and uniformity of thickness of material used when applying patches. Among maintenance advantages claimed are: Low cost of repairs, great saving in repairing and maintenance time, damaged plates can be cut out and new ones welded in position, cracks can be welded in position, and finally there are no rivets or patch screws to work loose.

THE SCRAP HEAP

The Leyland diesel coach which is operating on the railway between Blackburn and Clitheroe has given rise to much local comment, some of it distinctly humorous. Here is the latest story of the coach. A Whalley man, who had done rather more than look upon the wine when it was red, was pursuing a somewhat erratic course on the homeward trail, when he met a friend. Something was obviously troubling the slightly inebriated one and finally he blurted out, "Shay, don't tell the wife but I am sure I have just seen a Ribble bus going over the viaduct!"—*From the "Lancashire Daily Post."*

* * *

A CROSSWORD SOLVER'S BOAST

Sir Josiah Stamp, writing to *The Times* from St. Jean-de-Luz, says:—"After a week's chequered but salutary acquaintance with the entertaining mind of your crossword puzzler, I correctly completed his effort of Wednesday last with—or in spite of—spasmodic and guerrilla family assistance, in 50 minutes. What is the present amateur record?"

* * *

UP AND DOWN TRAINS

A.—"I'm sure these buffer stop collisions could be prevented if all large terminal stations were approached on up grades. Incoming trains would then have to do the last bit climbing, with steam on, and couldn't very well overrun the mark, whilst those leaving would have the benefit of an easier start downhill."

B.—"What's more, everybody would then know what was meant by 'up' and 'down' trains, eh?"

* * *

HISTORY REPEATS ITSELF, OR THE BLIGHTING INFLUENCE OF THE RAILWAY.

Mrs. and Miss Bulleid, leaving Port Madoc on August 7, 1934, by the 4.15 p.m. Caernarvon bus, were reminded of old railway tales of passengers being requested to alight whilst the train was hauled up some difficult gradient. Their bus came to a stand (on a very steep hill) near Garreg-frech, and, in reply to a passenger's query, "What happens now?" the conductor said, "Get out and push." Two thirds of the passengers alighted, and, with the assistance of the men pushing, the bus eventually proceeded on its way.

* * *

A standard monogram, the company's initials in a circle, has just been adopted by the Great Western Railway. It will take the place of the words "Great Western Railway," the company's crest, and various other combinations and abbreviations now in general use. The monogram, which we reproduce, will appear on all anti-macassars, brass uniform buttons, carpets, posters, handbills, stationery, cups, saucers, and road motor vehicles—in fact, every department of the line will use it to give complete uniformity throughout the system and service. This change closely follows the recent discontinuance by the company of unnecessary notices in compartments, the dropping of the word "third" from compartment doors, and the practice of using fancy linings on the outside of its rolling stock.

* * *

Behold America after a hundred years of railway building. The result of this vast construction programme was to bring farms and factories together. Thousands of carloads of food products per day must pour into the six million population centre in New York to feed the people. This pouring was made possible by railroads. In 1929 there were many successive weeks when we loaded a million cars per week. And a carload in this country is 40 tons. America is the greatest among the wonders of the world because of her railroad building. This is the foundation for our prosperity in all other lines.

Reflect on these figures. In America with 123 million people on 5 per cent. of the earth's area we have constructed and have in use 260,000 miles of railroad. This is one-third of the rail mileage in the world. On the earth outside our domain there are 1,500,000,000 people with a total of 780,000 miles of railroad. It is easy to understand in view of this record why our people own an auto for each group of five persons and a telephone for each group of six.

We have a mile of railroad for each group of 100 persons, while those outside our boundaries have a mile of railway for each group of 2,000. Our superiority in railway mileage has raised our standard of living far above the average in other nations. A motor car for 200 persons and a telephone for 250 is the average outside our domain. We have similar advantages over all others in almost everything else that goes into a standard of living.

There is need of a new dispension in some directions. This is especially true in the business of dealing with the railroads. Their rôle in the building of America has been identical with the rôle of the veins and arteries in the building of the human body. Stop the circulation of the blood, and the body dies. Stop the function of our railway arteries of commerce, and prosperity will perish.—*From the Hurleyville, New York, "Sentinel."*

* * *

SUNDAY TRAIN FOR GREENOCK

It is satisfactory to state that the agitation for railway communication between Glasgow and Greenock on Sunday has at last been successful. The Caledonian Railway Company has decided to run one train each way. The limited mail, which has hitherto terminated at Glasgow on Sunday, will be continued to Greenock, where it will arrive at 7.50 a.m., and the up mail will leave Greenock at 5 p.m.—*Fifty years ago in the "Glasgow Herald."*

On Monday next, Railway Air Services Limited will begin an internal air mail service between the principal cities of England, Northern Ireland, and Scotland. Above we reproduce a letter conveyed by the first regular internal air mail operated in this country, between Cardiff and Plymouth by the G.W.R. on April 12 of last year. The service was later officially recognised by the Postmaster-General, when a special stamp was issued

OVERSEAS RAILWAY AFFAIRS

(From our special correspondents)

Recent history of the Brazilian Eastern Railways—Accidents on Indian lines in 1933-34—Faster trains between Turin and Rome — Peiping-Mukden through working—Hungarian Railway budget—Last year's results in U.S.S.R.

BRAZIL

Cancellation of Government Contract with the Eastern Railways Company

On the occasion of the rescinding of the contract, whereby the lines belonging to the Federal Government and hitherto leased to the above company, have reverted to the Union, Dr. Mendonça Taylor, the ex-Superintendent, published an interesting report regarding the operation of the line during his term of office, which dates from February, 1931. At the time he took charge, the company's finances had commenced to decline badly, for which state of affairs the world economic crisis was mainly responsible. In spite of drastic economies, the effects of this crisis, aggravated by a drought which ravaged the whole of the State of Bahia, were such that a deficit of 1,373 contos in 1931 was unavoidable, although the saving in expenditure amounted to as much as 1,136 contos. During the next year (1932), a still greater effort was made and resulted in a further reduction of expenses by 2,290 contos, the financial year closing with a deficit of 607 contos only. These figures will be appreciated the more when it is realised that the company had to rely upon its own resources entirely, without the slightest prospect of help from outside.

Railway as Public Benefactor

When the crisis and devastation wrought by the drought were at their height, the company did everything in its power to assist the population, conveying water-tanks and foodstuffs free of charge, and facilitating by means of reduced fares the migration of inhabitants to the less afflicted portions of the State. Meanwhile rates on all exported merchandise were reduced on an average by 23 per cent., and a significant result of all these measures was that the deficits of the two previous years were turned into a favourable balance of 719 contos in 1933, while for the first four months of 1934 the net receipts had already attained 579 contos. During Dr. Taylor's tenure of office, a new 20-km. length of line, between França and Junco, was completed and was to have been opened on July 1 this year.

The lines hitherto operated by the company, after being formally taken over by the Government, will be directly subordinated to the Ministry of Communications and Public Works, and administered by a special engineer appointed by the Government, the services of the existing staff, with the exception of those occupying high executive positions, being retained.

Rêde Mineira de Viação

The Government has approved the estimates, which amount to 6,676 contos, for the purchase of materials and installation of plant (including eight locomotives and five transformer sub-stations) required for the electrification of the Barra Mansa-Angra dos Reis and Augusto Pestana-Pujol lengths of the Oeste de Minas section of this group of railways.

A strike which broke out in the middle of June, originating among the shopmen employed at Divinopolis (also on the Oeste de Minas section) and eventually extending to most of the important centres on the "Rêde," was satisfactorily settled after three or four days of partial stoppage of train services. As a result of negotiations, the Government Interventor in Bello Horizonte received the strikers' representatives, who were accompanied by the Secretary of Agriculture as intermediary, and after a full discussion of the various points it was agreed to grant the increases in pay demanded. As soon as the agreement had been drawn up, the Interventor requested that suggestions for the solution of various problems concerning the railway-workers be sent to him without delay, promising that they should receive favourable consideration.

INDIA

Railway Accidents

The Railway Board has published the reports by Government Inspectors upon five railway accidents during the year ended March 31, 1934. The most serious of these occurred at Tarikere, on the Mysore Railways, on July 11, 1933, when a mixed train consisting of one third class bogie, one third class bogie brake, one four-wheeled third and brake, one bogie goods empty and 16 four-wheeled goods of which 14 were loaded, left Tarikere station in the up direction at 20.28. It was a wet night and the rail was greasy. The engine had great difficulty in negotiating the steep grades and finally stalled at a spot on a 1 in 90 about ¾ mile from Sivapur station, which was, however, out of sight of the station staff on account of curves and a cutting. The guard and driver, after consultation, decided to divide the train, and the engine with eight vehicles went ahead to Sivapur. The remaining 12 vehicles including the coaching stock moved down the grade and, gathering momentum, careered into Tarikere station, where they collided with the 17 Up Mail waiting on the platform line. As a result of the collision 11 persons were killed on the spot and 6 out of the 19 injured subsequently succumbed to their injuries. Nine of the runaway vehicles were completely smashed and the engine of No. 17 Up was badly damaged. Mr. Laughton, Senior Government Inspector of Railways, placed the responsibility for the runaway and the subsequent collision on the guard of the mixed train for not having applied the brakes in the brake vans when the train stalled. The guard and driver were both to blame for proceeding with the front portion of the train without satisfying themselves that the portion left behind was properly secured against movement. The installation of automatic vacuum brakes was recommended.

Coal Train Derailment

The second inquiry related to the derailment of 16 wagons of a coal train on the Amla-Parasia section of the Great Indian Peninsula Railway. The train entered Nawegaon station, situated on the top of an incline, assisted by a banking engine which was detached at this station. The accident occurred about a mile before the next station, Bordhai. After the accident it was noticed that the train had parted, the first 24 wagons and the engines having come to a standstill 1,500 feet from the rear portion. The 24th vehicle, *i.e.*, the last one of the front portion, was completely derailed and the first fifteen vehicles of the rear portion were all derailed, capsized or telescoped. The front draw bars of the 25th and 26th wagons were fractured, that of the former lying on the track 15 feet ahead of it. The track under the wreckage was demolished and the 1,500 feet of track between the two portions of the train had the tiebars of sleepers damaged by the derailed 24th vehicle. The total cost of the damage to permanent way and rolling stock amounted to Rs. 32,377. The site of the accident is on a 1 in 100 down grade which extends from about 1,700 ft. behind the wreckage. The train was fitted with automatic vacuum brake throughout. In the face of much conflicting evidence —two outside witnesses declaring that the train parted before derailment—the Government Inspector came to the conclusion that the train did not part before the derailment. The 25th wagon was first derailed due either to some

defect, or to running over an obstacle. This derailed wagon, heavily loaded with coal, was hauled and pushed by the heavy loads on either side for some distance down the steep grade when its front draw bar snapped. The heavy momentum of the loaded wagons behind the derailed 25th wagon caused the following wagons to capsize or telescope.

The remaining three inquiries were concerned with collisions between trains, in none of which was there any loss of life. The three collisions occurred on the South Indian, East Indian and H.E.H. the Nizam's State Railways.

ITALY

New Station at Florence

More than half of the framework of the new station at Florence has now been erected. The station building will cover an area of nearly three acres and the circulating area will have a length of 361 ft. and a width of 97 ft., giving access to 15 platforms each 1,050 ft. in length, and 28 ft. wide. Adjoining the station building, a model of which we illustrated in our issue of April 27 last, a special building is in course of erection in which a central heating installation will be housed. This will have a capacity of 12,500 cal.-hr. and will be used for heating the station and out-buildings and also for preheating passenger stock. Electric power signalling is being installed and a signal-box with 280 levers is under construction.

Children's Holidays

The usual one month's holiday provided by the Fascist party will this year be enjoyed by some 466,135 children. Out of this number the Fascist railwaymen's association is sending, at its own expense, 13,140 children to the seaside and 3,016 to mountain colonies, a total of 16,156 against 11,136 last year.

Improved Turin-Rome Service

From October 7, when French summer time comes to an end, several important changes in the Paris-Rome services will take place, and at the same time a new express from Turin (with a Paris connection) to Rome will be put on. This new train will leave Turin at 11.50 a.m., and, calling at Genoa at 2.05 p.m., Pisa at 4.24 p.m., and Leghorn at 4.42 p.m., will reach Rome at 8.40 p.m. The journey time will thus be reduced from the present fastest of 9 hr. 40 min. to 8 hr. 50 min. The overall average speed, including the three intermediate stops, works out at 46·6 m.p.h. The first 218 out of the total 414 miles from Turin to Rome are electrified on the three-phase system, the remaining 196 miles being steam worked.

The works in connection with the electrification of the Naples-Salerno line were inspected a few days ago by the Minister of Communications, prior to the electric service being inaugurated on October 28.

After being postponed for a month, the closing of the Bologna-Florence Direttissima exhibition at Bologna took place on August 1. The exhibits and models have been transferred to Prato, where they are on view in connection with the annual festivities in that town.

THE FAR EAST

Chekiang-Kiangsi Railway

The National Economic Council has voted $100,000 for the construction of the Yushan-Pinghsiang section of the line, and work upon this section was to have been started in July.

Nanking-Shantung Railway

A survey party under Mr. Yu Hsien has started from Chinkiang, the capital of Kiangsu, to locate the Nanking-Shantung railway; construction of the Kiangsu section of this line is to be started at an early date.

Resumption of Through Traffic Between Peiping and Mukden

Through traffic was resumed on the Peiping-Mukden Railway on July 1 after a cessation of two and a half years. It is being handled by a newly formed company under the title of the Eastern Travel Service, a joint Sino-Japanese concern with both Chinese and Japanese personnel. The headquarters of the company are at Shanhaikuan, with branches at points on the route.

The question is a very difficult one to handle, and a certain amount of opposition has been indicated. A demonstration with disastrous consequences took place against the first through express from Peiping to Mukden on July 1, resulting in fatal injury to several passengers and the wounding of a number of others. When the train reached Chiating, about 50 miles from Tientsin, a bomb was exploded which wrecked one of the cars on the heavily loaded train. The train was able to proceed after removal of the damaged coach and the killed and injured were taken to Tientsin.

Comprehensive Through Train-working

In accordance with resolutions adopted at the recent National Through Traffic Conference, a new time-table for through traffic services on the various railways was introduced on July 1. Altogether 13 railways—the Nanking - Shanghai, Shanghai - Hangchow-Ningpo, Tientsin-Pukow, Chekiang-Kiangsi, Lung-Hai, Kiaochow-Tsinan, Peiping-Hankow, Chengting-Taiyuan, Taokow-Chinghua, Hupeh-Hunan section of the Canton-Hankow, and Chuchow-Pinghsiang lines—will come under the new arrangements. The schedule of the Nos. 301 and 302 Peiping-Shanghai through trains will be the basis for compilation of the time-table for other lines. Through running between Chinkiang, the provincial capital of Kiangsu (on the Nanking-Shanghai Railway) and Kashing, in north - eastern Chekiang (on the Shanghai-Hangchow-Ningpo Railway) was also instituted on July 1.

The *Chinese Economic Bulletin* reports that an agreement for a loan of $1,500,000 for a widespread refrigeration system, has been formally signed by Mr. Ku Meng-yu, Minister of Railways, and representatives of Shanghai banking circles. This loan will be used for the provision of cold storage equipment on the Lung-Hai, Tientsin-Pukow, Peiping-Hankow, Nanking-Shanghai and Shanghai - Hangchow-Ningpo Railways. Besides a large number of refrigerator cars, cold-storage warehouses will be built at Nanking, Hsuchow, Peiping and Hangchow.

HUNGARY

Current Year's Railway Budget

The budget of the Hungarian State Railways for the year ending June 30, 1935, shows an estimated working expenditure of 193,516,000 pengos against receipts totalling 211,320,000 pengos, but reparations and other payments amount to 67,887,000 pengos, and produce a deficit of 50,083,000 pengos. Goods traffic is expected to yield a revenue of 129,000,000 pengos and passenger traffic 70,500,000. An allowance of 3,200,000 pengos has been made for the construction of new rolling stock, and 2,750,000 pengos for the completion of the electrification from Komarom to Hegyesbalom. (There are 17 pengos to the £ at the present rate of exchange, and 27·82 at par.)

U.S.S.R.

Railway Results in 1933

According to the Soviet Commissariat of Transport, 912 steam locomotives, 24 electric locomotives, 1,350 passenger carriages, and 17,500 goods wagons were constructed during 1933. Approximately 30 per cent. of the new goods stock was of the high-capacity type with automatic couplers, but the number completed formed only 60 per cent. of the programme, and this proportion applies generally to the whole of the new works; for instance, 1,123 km. (700 miles) of new line were brought into operation against the 1,750 km. (1,083 miles) required by the provisions of the second Five Year Plan. The coal traffic rose to 66·3 million tonnes from 56·7 million in 1932, and the mineral traffic to 16 million tonnes from 12·7 million, but the tonnage of grain fell from 28 million to 22·8 million. Two years of electric operation on the 40-mile Suram Pass division of the Baku-Batoum line in the Caucasus have shown an annual saving of 736,000 roubles, an appreciable portion of which is due to the reduction of locomotive crews from 248 to 80 men.

CLEANING AND RECLAIMING AXLE-BOX OIL AND PACKING

A system in use on the Jhansi Division of the Great Indian Peninsula Railway for combating the hotbox evil

MUCH has been done throughout the Indian railways of late towards combating the hotbox problem, particularly where wagons are concerned, and a systematised method responsible for a vastly improved working is outlined herewith. Until recently, attention was paid only to the reclamation and re-issue of waste, after being properly attended to at a centralised depôt, with a view to the saving of demands for new supplies. To-day, however, equal attention is given to the reclamation of oil, by a process undeniably elementary yet extremely satisfactory in results. Hitherto, 50 per cent. of waste reclaimed from axleboxes was re-issued, while the oil was not put to any useful purpose beyond that of smearing over metallic locomotive and carriage and wagon parts subject to rust, the unserviceable waste being utilised for lighting up engines in locomotive sheds.

An installation designed for oil extraction and refining has been adopted on the Jhansi Division of the Great Indian Peninsula Railway, as a result of successful experiments conducted by Mr. R. E. Bury, Locomotive Works Manager of the East Indian Railway at Lucknow, whose methods of extracting oil from used waste, when combined with the Great Indian Peninsula Railway's systematised methods of reclaiming waste, are considered a most promising factor in reducing the consumption of mineral axle oil.

While the plant, in some respects, resembles that which has been used successfully for a number of years by the London Underground railways, the process differs in that the oil is extracted from the waste by the turbine process, and is subsequently cleansed by boiling. The apparatus consequently consists of two distinct parts, the oil extracting plant and the oil refining plant, both of which are illustrated herewith.

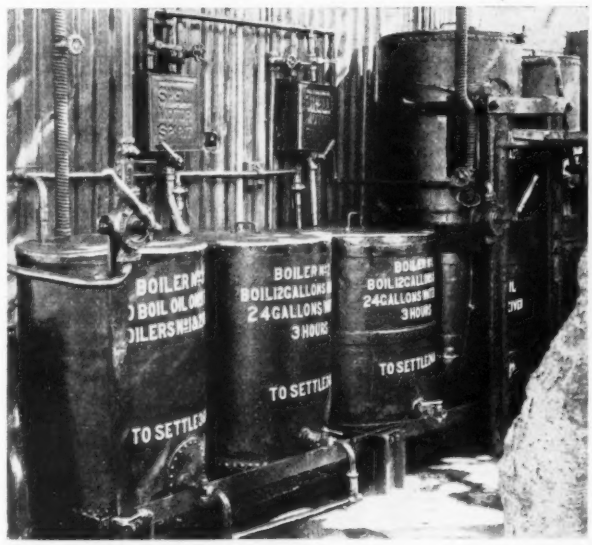


Fig. 1—Oil refining boilers in foreground and extracting plant beyond, as installed on the Jhansi Division, G.I.P.R.

The oil extracting plant consists of a battery of two or more extractors, each made up of an outer tank with

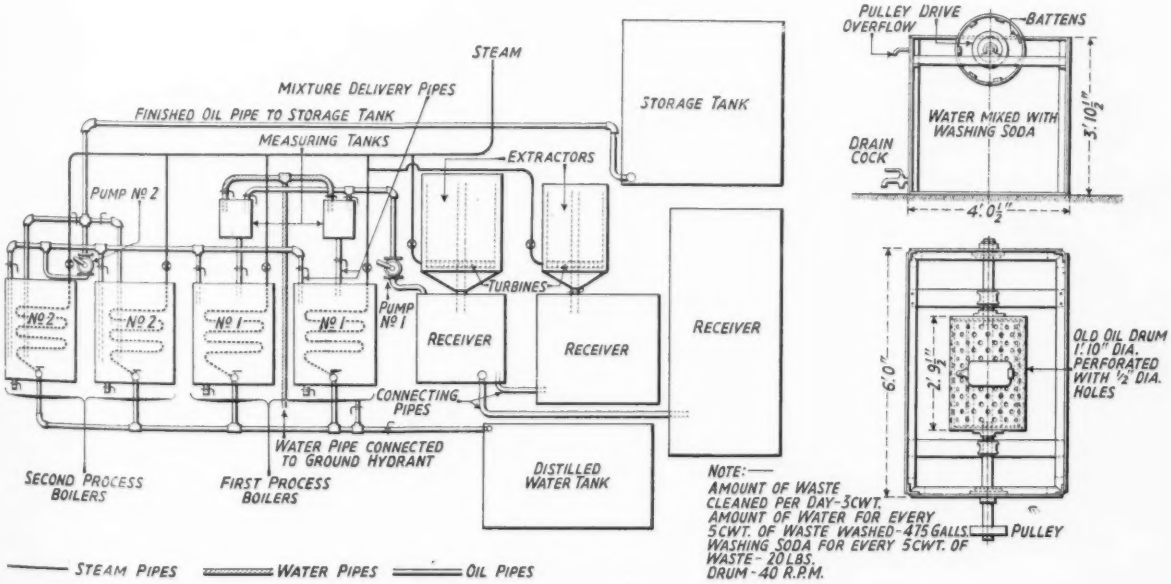


Fig. 2—Oil extracting plant, Bury's system, with extractors, driven by self-contained steam turbines, and battery of refining boilers, No. 1 for first boiling and No. 2 for second boiling processes

Fig. 3—Plant for cleaning waste after the oil has been extracted from it in the refinery

cone-shaped bottom about 2 ft. 6 in. high × 2 ft. diam., fitted with brackets and roller bearings, in which a perforated drum with a vertical spindle revolves at high speeds. This is driven by a steam turbine incorporated in the bottom of the perforated drum, a steam jet being fitted to the outer drum in such a manner as to admit steam to the perforated drum, where it strikes the turbine plate and rotates it. A small exhaust pipe is fitted at the top of the outer tank. The waste packing reclaimed from axleboxes is placed in the inner perforated drum and the rotating action at high-speed extracts the oil from the waste, the oil draining into the cone-shaped bottom section of the outer tank and thence into an oil receiver through a drain pipe fitted directly beneath the extractor.

The Oil Refining Process

The oil refining installation consists of a battery of one or more cylindrical tanks about 2 ft. 5 in. high × 2 ft. 1 in. diam., in which a coiled steam pipe of 1 in. diam. enters each tank one foot from the top and extends in circular coils to the bottom, where it terminates with an exhaust cock. Oil is withdrawn from the receiver by means of a semi-rotary oil pump into the measuring tanks, where it is measured and mixed in the proportions of 2 of clean water to 1 of oil. The mixture is then passed into the cylindrical tank or boiler by opening a cock fitted to the bottom of the measuring tank. The mixture is boiled by allowing steam to pass through the steam coils at about 40 lb. pressure, and, by this process, the oil is brought to boiling point without the steam coming in contact with the oil. Oil is boiled in this tank for two hours, thermometer readings being taken from time to time during the boiling process, so as to ensure that the temperature does not exceed 212° F.

After boiling, the mixture is allowed to settle for 24 hours, after which period the top layer of clean oil (usually about three to four inches in depth) is drawn off by means of a semi-rotary pump into a second boiler of similar dimensions. The oil cleaning plug is then removed from the bottom of No. 1 boiling tank, and the residue of dirty mixture of oil and water drained out and the tank thoroughly cleaned and made ready for a second filling of oil from the extractor.

Boiler No. 2, the tank of similar dimensions into which the oil drawn from boiler No. 1, is also boiled without water for a period of three hours. Care must again be taken to ensure that the temperature does not rise beyond 212° F., otherwise the oil tends to thicken. After this boiling process the oil is allowed to settle for 36 hours, and, from this second refining process, it is pumped out, by a semi-rotary pump, into storage tanks. The same process for cleaning the tank, after each refining process, is resorted to. The suction pipes leading to boiler No. 2 are so fitted that they extend only four inches into the boiling tank No. 1, so as to ensure that only the pure oil is pumped out for the second boiling process.

This plant can be constructed in as many units as is necessary to handle the amount of reclaimed waste packing requiring treatment. The illustrations show two extractors, a similar number of boilers for the first boiling process, and two further boilers for the second boiling process, advantage of the battery of boilers being that it avoids the delay which would otherwise be occasioned by oil settling, and would preclude the use of that tank for further refining process until the requisite period for settlement had expired. All hand-filling from one tank to another is eliminated, and the plant is capable of extracting 4 cwt. of oil and 2 cwt. of waste in an eight-hour shift. The waste, from which the oil is extracted and which has been cleansed, is available for either re-mixing and re-issue for packing purposes, or, if not up to the requisite standard of quality, is issued in place of No. 3 waste for staff needs and cleaning purposes. The analysis of the oil, after treatment by this refining process on the East Indian Railway, has shown it to be comparable with the Indian Stores Department specification, and it has been thoroughly successful when re-used in the lubrication of carriage axleboxes.

Owing to the disparity in methods prevalent at the several depôts of the Jhansi Division of the Great Indian Peninsula Railway and, in consequence, the liability of certain depôts to re-use waste quite unfit for further service, it has become only too apparent that work of such importance should be carried out under the most competent supervision at the main centre, to which depôt all reclaimed packing is sent and which is responsible for teasing up and supplying resuscitated issues to the out-station depôts. It is interesting to note that this opinion coincides with the experience of Underground railways, whose plant is installed at the chief depôt only, the re-conditioned packing being sent out and used packing returned in closed containers, as is present-day practice on this division of the Great Indian Peninsula Railway. The success of the centralised scheme is due primarily to the following features:—

1. Packing extracted from boxes at out-stations is sent *in toto* to the central depôt.
2. All teasing and sorting out of unserviceable waste is centralised at this central depôt, and no out-station depôt is permitted to do this work.
3. All supplies of waste for repacking are soaked and drained at the central depôt and thereafter despatched to out-stations.
4. The waste extracted from boxes which had previously been repacked is mixed with new waste under proper supervision.
5. Improved supervision of repacking, no boxes being attended to during night hours, nor any except under competent control.

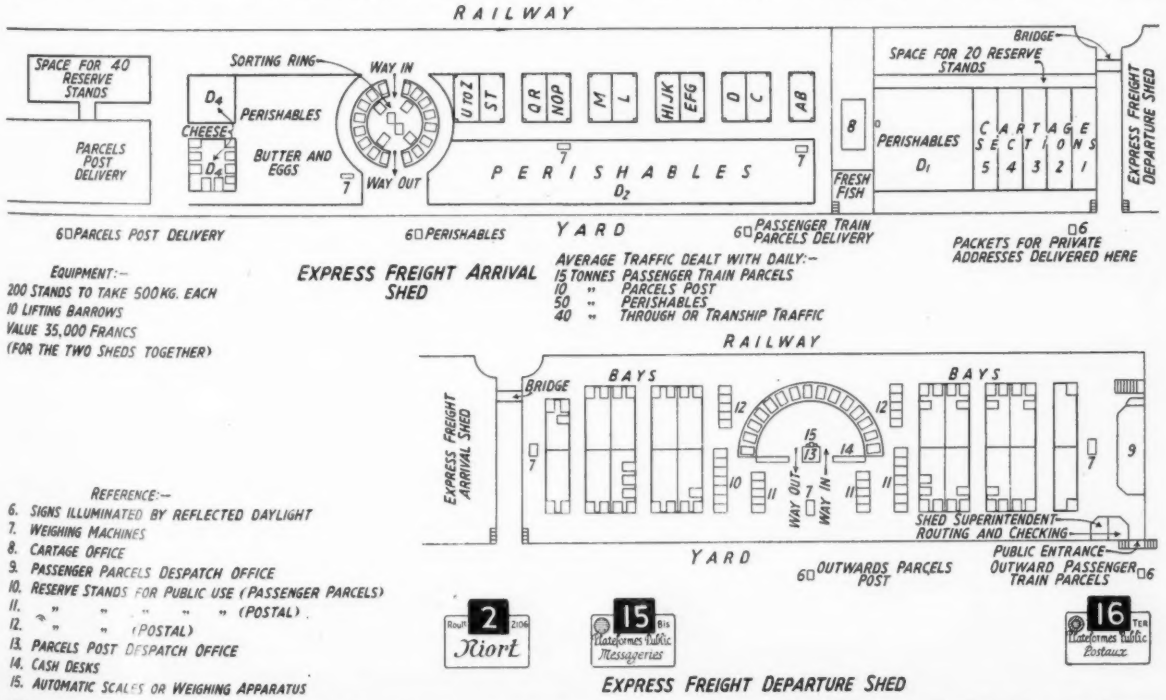
A further process of cleansing waste removed from the oil extractor is shown in Fig. 3; this plant consists of a drum fitted with battens, on which the waste is placed and then rotated in a tank with water mixed with washing soda.

LONDON TRANSPORT PHOTOGRAPHS.—An excellent exhibition of photographic enlargements relating to London Transport activities was opened on Wednesday in the booking hall of Charing Cross underground station, at the bottom of Villiers Street. The exhibition consists of ten large photographs, flanking a middle group of five much smaller pictures, and their artistic arrangement and lighting leave nothing to be desired. The middle pictures have an interesting bearing on the many changes which have taken place in London transport, and stress the fact that few would associate the latest Green Line vehicle with its horse-drawn ancestor; whilst the trolley bus is, of course, a comparative newcomer to the metropolis. In the larger pictures—which are the work of Mr. Maurice Beck, F.R.P.S.—one sees a control board operator preparing to synchronise a turbo-alternator; a tram undergoing a thorough cleaning by means of a Spray gun; a bus engine being reconditioned at Chiswick; the overhauling of London's buses—an occupation which keeps 3,000 men constantly employed; and the examination of wheels and axles at Acton works. The remaining five photographs show a special method of cutting seat-covers with a high-speed electrical knife; the working of the train stop arm when the signal is at " danger "; a Green Line coach of 1934, with its massive tyres; night shift operations on London's underground railways; and the welding of wrought iron bars, without flame or flux, at Acton overhaul works.

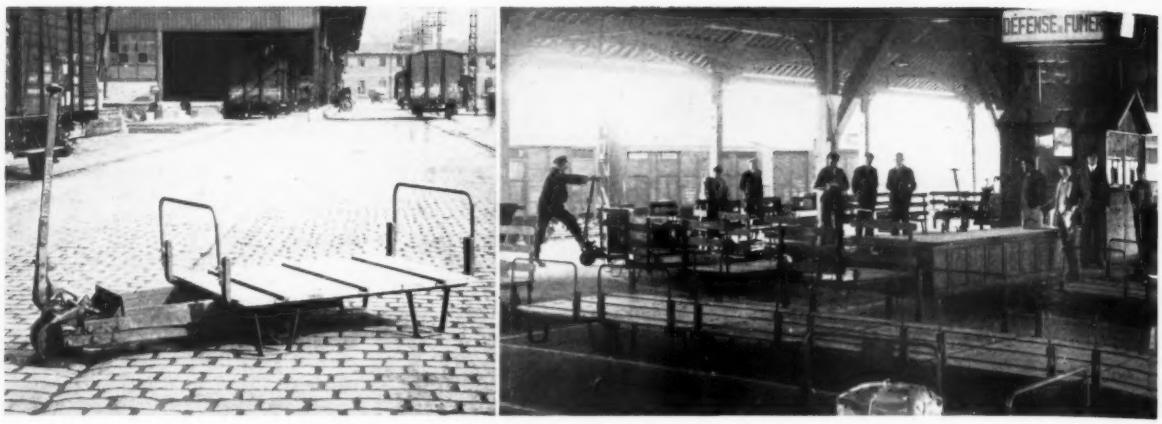
NEW EXPRESS FREIGHT DEPOT AT ROUEN

At the important French State Railways centre, Rouen, is now established an up-to-date depot for dealing with express freight and parcels traffic. Its principal feature is a system of transportable platforms used for sorting in separate arrival (as illustrated opposite) and despatching sheds

FOR some years past the express freight, or *grande vitesse*, service at Rouen (Rive Gauche), on the French State Railways, has been dealt with in wooden buildings built for war use. They were inconvenient for the purpose, the staff having to work in uncomfortable surroundings, crowded together under artificial light all day long, and therefore inefficiently. As soon as funds became available a new and up-to-date depot was built. The offices have been brought together in one hall, 400 sq. m. in area, comfortably and conveniently fitted up, with every facility for enabling business to be transacted rapidly. Excellent lighting, central heating and other modern features are provided. The departure shed has an area of 1,650 sq. m. and has been laid out with the object of saving time and reducing the amount of walking necessary, both on the part of the staff and of clients, in dealing with the work. It is divided into a number of bays, each one corresponding to a certain traffic route, as for example, route No. 2,106 to Niort, this being in turn divided into sub-sections, according to convenience. The sub-sections are in reality small stands, or platforms, capable of being moved about by means of specially constructed barrows. The centre of the shed is the sorting section for parcels post, a number of stands being arranged in a semi-circle, round the clerk in charge. When a stand is full it is taken away to the relative bay and an empty one substituted. In the case of the ordinary passenger train parcels traffic, or *messageries*, a client



Plan showing layout of express freight arrival and departure sheds at Rouen (Rive Gauche), French State Railways



Left: Sub-section or platform with special barrow. Right: A typical bay in one of the sheds, for a certain traffic route, showing sub-sections in position and barrow in use in background

first goes to the routing office, where the goods are classified and allocated to the right route number, after which he proceeds with them to the correct bay, and then completes the remaining formalities at the despatch, or outward freight, office.

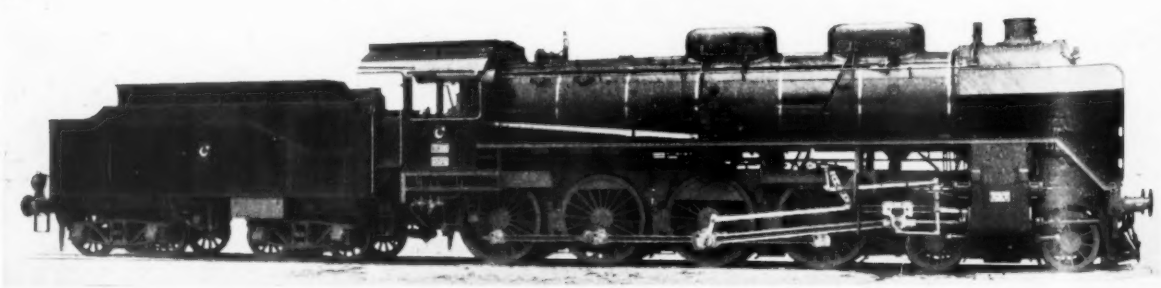
The arrival shed has an area of 3,000 sq. m. and in it goods remain until they are delivered to the consignee. It is divided into various zones, according to the classes of goods or service concerned, and an important part of it is the sorting ring, as it is called, 11 m. in diameter, consisting of 16 stands arranged in a circle, with four more inside it, each having several shelves as sub-divisions. Wagons to be unloaded are stopped as nearly as possible opposite this ring and the freight is classified into (1) perishables, (2) heavy packages, and (3) all others. The first two are then taken to their respective bays and the remainder are placed in the correct sections of the sorting ring according to class, &c. The arrival side of the depot deals with 110 tons of freight nightly. In the departure shed there are 100 stands and 5 transporter barrows. A great improvement in the traffic working is stated to have followed the opening of the new depot.

NEW GERMAN-BUILT LOCOMOTIVES FOR TURKEY

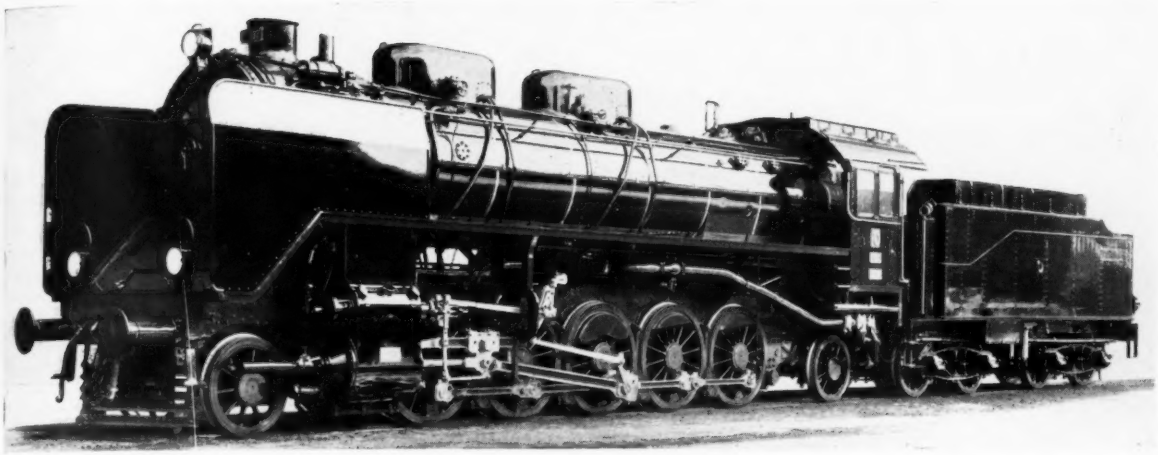
Standardisation of parts is applied extensively in new 4-8-0 passenger and 2-10-2 goods locomotives for the Turkish State Railways

Under an important order placed with Henschel & Sohn A.G., Kassel, and Fried. Krupp A.G., Essen, for the construction of thirty heavy passenger and goods locomotives for the Turkish State Railways, there have recently been delivered five passenger and ten goods locomotives. As regards the passenger locomotives, the 4-8-0 superheated type, designed and built by the Henschel firm for the Turkish State Railways in 1926, was taken as the basis for the new engines, subject to certain modifications. One of the new locomotives is shown below. In order to reduce the necessary stock of spares, the principal components were taken from the well-tried G. 10 and T. 18 type locomotives of the German State Railway, as already used by the Turkish State Railways. Thus, the bogie frame and wheels, the tyres and axles of the driving and coupled wheels, and the axleboxes with keeps and bearing springs are taken from the T. 18 locomotives; while the cylinders, pistons and valves, crossheads, slides with carrying brackets, and the whole of the reversing gear, are taken from the G. 10 locomotives.

The standardisation thus effected was carried yet further in the design and construction of the new 2-10-2 super-



One of the 4-8-0 type locomotives built in Germany for working passenger trains on the Haidar Pacha-Ankara section of the Anatolian Railway where axle loads are limited to 15¾ tons



A 2-10-2 type goods locomotive for use either on the Haidar Pacha—Ankara or on secondary lines as its maximum axle loading is 13¼ tons

heated goods locomotives, the boiler of the 4-8-0 passenger locomotives being adopted complete with all fittings, covering and cab, without any modification. Similarly, the cylinders, motion, reversing gear, axleboxes, bearing springs and brake rods are identical with those of the G. 10 locomotives. Both types are used with a standard eight-wheeled tender.

The substantial degree of standardisation effected in these interesting constructions is shown by the following table of leading dimensions:—

	4-8-0 Superheated Passenger Locomotive	2-10-2 Superheated Goods Locomotive
Cylinders, diam. ..	630 mm. (24¾ in.).	
,, stroke ..	660 mm. (26 in.).	
Coupled wheels, diam.	1,650 mm. (5 ft. 5 in.).	1,400 mm. (4 ft. 7 in.).
Bogie wheels, diam. ..	1,000 mm. (3 ft. 3½ in.).	
Tender wheels, diam. ..	1,000 mm. (3 ft. 3½ in.).	
Boiler working pressure	12 atmos. (170 lb. per sq. in.).	
,, heating surface, tubes and flues	164·07 sq. metres (1,766 sq. ft.).	
,, heating surface, firebox	16·49 sq. metres (177 sq. ft.).	
	180·56 sq. metres (1,943 sq. ft.).	
,, heating surface, superheater	68·25 sq. metres (734 sq. ft.).	
Total	248·81 sq. m. (2,677 sq. ft.).	
Grate area	3·03 sq. m. (32·6 sq. ft.).	
Weight of engine in working order	88·47 metric tons (87 tons)	90·0 metric tons (88½ tons).
Adhesion weight ..	66·13 metric tons (65 tons)	66·9 metric tons (65¾ tons).
Tender, weight in working order	60·5 metric tons (59½ tons).	
Water capacity ..	27 cub. m. (5,940 gall.).	
Fuel capacity	8 metric tons (7¾ tons).	
Max. theoretical tractive effort (0·6 *p*)	11,500 kg. (25,300 lb.)	13,500 kg. (29,700 lb.).
Max. speed	80 km./hr. (49·7 m.p.h.)	65 km./hr. (40·4 m.p.h.).

The passenger locomotives are for use on the main line of the Anatolian Railway between Haidar Pacha and Ankara, where an axle load of 16 metric tons (15¾ tons) is permissible. They are capable of hauling a load of 320 metric tons (about 315 tons) on gradients of 1 in 67 at 35 km. (21·7 miles) an hour. The goods locomotives, having an axle loading of only 13·5 metric tons (13 tons 6 cwt.), can be used also on secondary lines, and these engines are capable of hauling loads of 480-500 metric tons (472-492 tons) on gradients of 1 in 67 at 20 km. (12·4 miles) an hour.

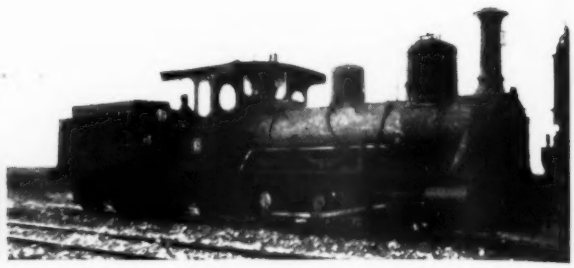
German State Railway Prize Poster

In the Overseas columns of our issue of July 27, mention was made of the above poster, which secured a cup presented by King Fuad of Egypt, as the best poster for attracting traffic, in this instance to Oberammergau for the jubilee Passion Play

Railway Scenes in Turkey

(See article on pages 282-3)

Terminus of Taurus express route at Tel Ziouane just over the Syrian frontier from Nisibin

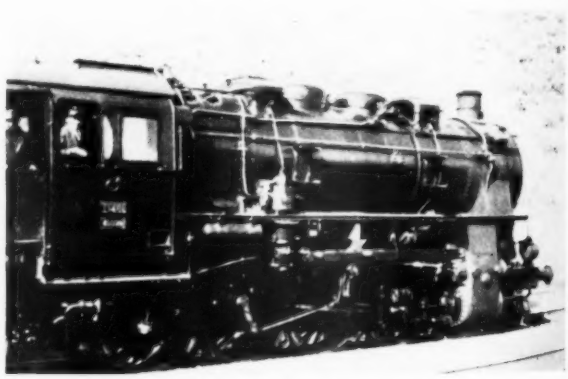


Allan link motion 0-6-0 locomotive used for hauling Taurus express between Nisibin and Tel Zionane

Left and centre: Taurus express crossing the Anatolian plateau between Afion Kara Hissar and Eski Shehr

Right: Taurus express at wayside station on the Eski Shehr - Haidar Pacha section

An 0-10-0 detached from Taurus express in order to take water at Mouslimie



Taurus express 2-8-0 locomotive between the Syrian frontier and Adana

Left: First and second class four-wheel coach used with Wagon Lits bogie stock to form the Taurus express. Right: Running shed at Islahie near the Syrian frontier north west of Aleppo

RAILWAY NEWS SECTION

PERSONAL

Mr. E. A. Glayzer who, as announced in THE RAILWAY GAZETTE of August 3, has been appointed Chief Clerk to the Superintendent of the Line, G.W.R., was born in 1884 and entered the company's service in 1900 in the Chief Telegraph Superintendent's Office at Paddington, shortly afterwards being transferred to the Office of the Superintendent of the Line. Subsequently he was associated with the work in connection with the introduction of the first road and rail motor car services by the company. He has had experience in various sections of the office and for some years acted as personal clerk to the late Mr. Charles Aldington. In that capacity he spent several weeks in different divisions in connection with special events. Mr. Glayzer was later appointed to take charge of the general section, where a variety of special subjects had to be dealt with, and for the past few years has also deputised for the Chief Clerk.

Mr. E. A. Glayzer,

Appointed Chief Clerk to the Superintendent of the Line, G.W.R.

We regret to record the death on August 12 of Lt.-Col. Sir James Carmichael, C.B.E., C.M.G., R.E., retired, formerly one of the Crown Agents for the Colonies, at the age of 66. Colonel Carmichael was educated at Clifton and passed into the Royal Engineers in 1887 and, while serving in India, was selected for railway work including employment on the Zhob Valley Railway Survey in 1890. After further experience abroad, at the War Office, and on Ordnance Survey, he was appointed head of the Engineering and Works Department of the Crown Agents in 1904, being placed on the Reserve of Officers. There he was closely connected with the reorganisation of the department so that it soon began to act as consulting engineers for nearly all Colonial railways instead of employing outside firms and inspectors. During the war he was on the Armaments Output Committee and in the Ministry of Munitions, and later was responsible for the formation of the High Speed Steel Committee, Iron and Steel Department. Returning to the Crown Agents office, he was soon promoted to be Chief Engineer, and, in 1921, was appointed one of the Crown Agents, retiring from this position in 1932. Col. Carmichael was elected a Member of the Institution of Civil Engineers in 1915, created a C.B.E. in 1918, and a C.M.G. in 1920, and was knighted in 1929.

INDIAN RAILWAY STAFF CHANGES

Messrs. L. E. Brock, A. K. Homan and Rai Bahadur P. L. Dhawan have been confirmed as Divisional Superintendents, N.W.R., as from April 20 and May 25.

Mr. S. H. Sharp, Officiating Deputy Chief Mechanical Engineer, G.I.P.R., has been confirmed in that appointment provisionally as from April 28.

Mr. C. W. Parsons, Deputy Chief Engineer, Signals, E.I.R., has been permitted to retire from Government service as from June 14.

Mr. H. H. Yule, Deputy Chief Operating Superintendent, E.I.R., on return from leave, has been appointed to officiate as Divisional Superintendent on that railway as from June 15.

Mr. N. Pearce, Agent, E.B.R., has been permitted to retire from Government service as from June 20. Rai Bahadur B. R. Singh, Officiating Agent, has been confirmed in that appointment as from the same date.

Mr. A. Richardson, Officiating Chief Mechanical Engineer, G.I.P.R., has been confirmed in that appointment provisionally as from April 28, 1933.

Messrs. J. A. Bell and R. E. Marriott have been confirmed as Divisional Superintendents, E.I.R., as from June 28 and November 30, 1933. The latter officer has been granted seven months' leave as from August 17.

Lieut.-Colonel W. Macrae, R.E., Chief Engineer, has been appointed to officiate as Agent, N.W.R., as from June 9. Mr. F. R. Morgan officiates as Chief Engineer from the same date.

Khan Bahadur Muzaffar Hussain and Sardar Bahadur Ram Singh have been appointed to officiate as Deputy Chief Engineers, N.W.R., as from June 7.

Lieut.-Colonel H. L. Woodhouse, M.C., R.E., has been appointed to officiate as Divisional Superintendent, N.W.R., as from June 8.

We regret to record the death on August 3, of Mr. John C. Christie, O.B.E., late Goods Manager, Southern Scottish Area, L.N.E.R. Mr. Christie was educated at Dollar Academy and had a wide experience of railway affairs as stationmaster and also in goods train working in the office of the Superintendent of the Line on the North British Railway. He then left that system temporarily to take up an appointment as Assistant Traffic Superintendent on the Bengal & North Western Railway, India. On his return he became Chief of the Excursion Department, N.B.R., and later District Superintendent in Glasgow. Mr. Christie was selected to fill the position of Assistant Chief Goods Manager in 1918, and a year later was appointed Chief Goods Manager, carrying on the same duties, after the amalgamation with the title of Goods Manager, Southern Scottish Area, L.N.E.R. He was Chairman of the Goods Managers' Conference, Railway Clearing House for 1928 and received the honour of O.B.E. He retired in January, 1932.

The late Mr. J. C. Christie,

Formerly Goods Manager, Southern Scottish Area, L.N.E.R.

The late leader of the German Himalayan Expedition, Herr Willy Merkl, who was lost while climbing on July 16 last, had been an officer of the German State Railway for some ten years. He was born at Kaltennordheim, in Saxe-Weimar, on October 6, 1900, attended the Realschule at Trauenstein, and was

first employed at the Bavarian Nitrogen Company's works at Trostberg. He saw service in the war and then studied at the Technical High School at Nuremberg, entering the service of the Reichsbahn on May 16, 1923, in the Mechanical Engineering Department. After passing through various grades he became Works Engineer at the Neuaubing Shops in September, 1930. His abilities were such that rapid advance in the service was predicted for him. Herr Merkl had been extremely fond of mountaineering almost from childhood, and had seen much of it in the Alps. In 1929 he joined the German Caucasus expedition, and in 1932 it was he who called the Himalaya Expedition into being, assuming the leadership.

Herr Otto Mann is retiring from the Management of the German Railways' Information Bureau in London on September 1 and is being succeeded by Herr Hans Seydel.

Mr. H. Chapman, C.B.E., Resident Director and General Manager, Rhodesia Railways, has proceeded on long leave accompanying Sir Henry Birchenough to England. Mr. M. N. Varvill, Chief Engineer, will act as General Manager during his absence.

Southern Railway Staff Changes

The following changes took place towards the end of last month:—

Mr. A. B. MacLeod, appointed Assistant to the Western Divisional Running Superintendent, Locomotive Department, in place of Mr. H. P. Dawson, whose death we announced in our issue of April 6 last.

Mr. J. E. Bell, appointed Assistant for the Isle of Wight in place of Mr. A. B. MacLeod. Mr. Bell was previously in the Chief Mechanical Engineer's Department.

New Dover-Ostend Service, ms. "Prince Baudouin"

At the invitation of the Belgian Ministry of Transport, we joined a party of guests who, on August 13, travelled from London to Dover to be present at a luncheon on board the new cross-channel motorship *Prince Baudouin*, to celebrate the placing of this ship in service on the Dover-Ostend route. Among those in this party from London were:—

Messrs. J. B. Elliott, Assistant Traffic Manager; F. A. Brant, Assistant for Continental Traffic; C. Grasemann, Public Relations and Advertising Officer; R. H. Hacker; and G. R. Walter, Publicity Assistant; representing the Southern Railway. Baron Cartier de Marchienne, Belgian Ambassador in London; M. A. Mertz, Belgian National Railways representative in London; Herr Otto Mann, German State Railway representative in London; Dr. Meyer, representing the Austrian Federal Railways in London, and Count J. Tillette de Clermont Tonnerre, representing the Northern Railway of France in London.

On arrival at Dover the party was enabled to go over the ship. Built by John Cockerill, Seraing, the *Prince Baudouin* proved on her trials to be the fastest motorship in the world and faster than the turbine-driven ships on this service. In her design, which is based upon extensive experiment tank tests in Paris, special attention has been paid to wind resistance and manœuvrability as well as to speed, Two classes of passengers are carried upon her five decks, first class forward and second class aft.

The outstanding feature of the construction in the passenger accommodation is the provision of large bay windows in the first-class smoke-room and veranda café and in the second-class dining saloon. A special type of very thick glass of high strength has been used in the forward part of the superstructure, so that the passengers even during winter will be able to have a clear view of the sea. The complete ship's equipment of windows and sidelights was supplied by J. Stone & Co. Ltd., and include rack-and-pinion 30 in. by 40 in. centrally operated sliding windows; 44 fixed windows of the same size; frameless sliding windows; and fixed windows to match. All windows and sidelights are, in fact, fitted with armoured glass.

The principal dimensions of the *Prince Baudouin* are:—

Length between perpendiculars	109·9 m. (360 ft.)
Length, overall ...	113 m. (371 ft.)
Breadth	14 m. (45·9 ft.)
Depth, to shelter deck...	7·55 m. (24·78 ft.)
Depth, to main deck ...	5·05 m. (16·56 ft.)
Sheer, forward... ...	1·7 m. (5·58 ft.)
Sheer, aft	0·9 m. (2·95 ft.)
Maximum draught ...	3·7 m. (12·13 ft.)
Displacement at 3·4 m. draught	2,800 tons
Gross tonnage ...	3,300 tons
Net tonnage	1,394 tons
Contract speed ...	23¼ knots.

The engines comprise two sets having twelve two-stroke cycle single-acting cylinders of 580 mm. (22·8 in.) bore and 840 mm. (33·1 in.) stroke each developing a normal output of 7,500 b.h.p. and 8,500 b.h.p. at 250 and 268 r.p.m. respectively. Airless injection is used and starting is effected on eight cylinders. On her trials — which totalled 17 hours duration—at a displacement of 2,800 tons, the average speed was 25·25 knots with a thrust of 72·5 tons and at 253 r.p.m., the power being 16,000 b.h.p. corresponding to a mean indicated pressure of 6·45 kg. per sq. cm. (91·7 lb. per sq. in). The fuel consumption rate was 165 gr. (0·364 lb.) per brake horse-power hour.

An interesting feature of the wheel-house is the replacement of the usual wheel by two buttons or pushers, To alter course to starboard the right-hand button is pushed and to go to port the helmsman presses the left-hand button. This system of steering has been adopted for its simplicity and strength.

Luncheon in the first class saloon followed the inspection of the ship, M. R. E. de Vos, Director General of the Belgian Department of the Marine, taking the chair. After proposing the British and Belgian loyal toasts, he remarked upon the difference in appearance between the new and the old vessels on this run and suggested that the new design might revolutionise cross-channel standards. He claimed that the *Prince Baudouin* was the fastest channel packet, with all the latest refinements, and would greatly tend to improve the service and strengthen existing links between England and Belgium.

Mr. F. A. Brant, Continental Traffic Assistant, Southern Railway, representing Sir Herbert Walker, the General Manager, after expressing the latter's regret at his inability to be present in person, proposed the health of M. de Vos and success to the *Prince Baudouin*. He remarked that the speed of the ship made possible an acceleration of 2 hr. 40 min. in the schedule as compared with that in force when he joined the railway.

Dr. von Renesse, representing the German State Railway, and Baron de Cartier de Marchienne, the Belgian Ambassador in London, also spoke appreciatively of the new vessel and improved service.

Italian Railway Gardens

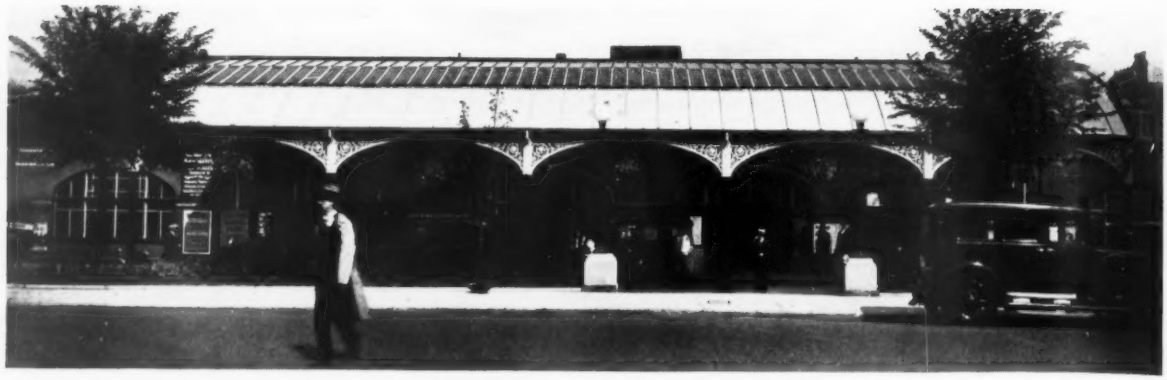
Above: Platform garden at Varese station

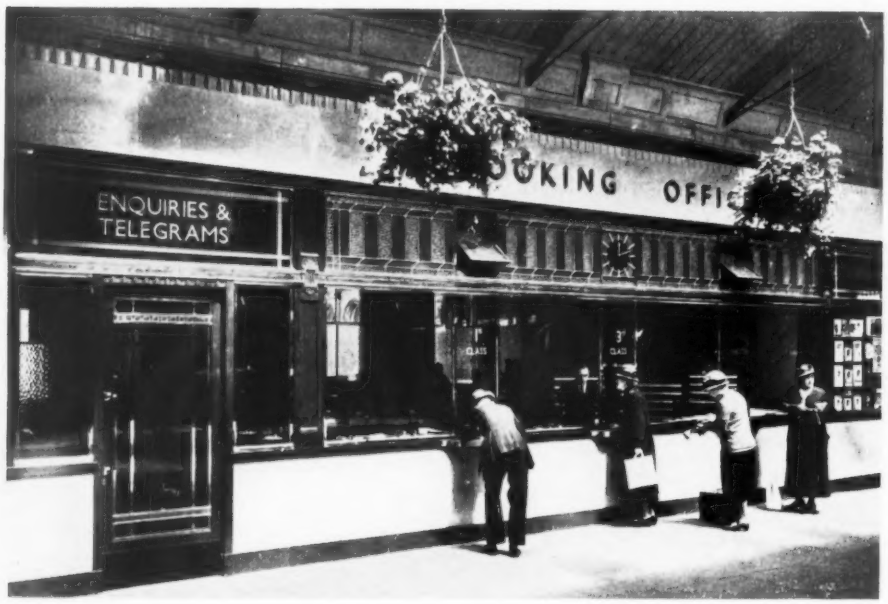
Left: Ornamental garden adjoining locomotive running shed at Milan

Below: Locomotive shops area at Porta Maggiore, Rome, laid out with flowers and shrubs

Floral decoration in the form of well laid-out and tended gardens, is a feature of the Italian State Railways at the present time. Not only are elaborate station gardens widespread as additional attractions to tourists, but locomotive and other depots are laid out with ornamental gardens, the idea being to improve the morale of the employee and provide him with an antidote to the tedium of routine work. The illustrations on this page give some idea of the scope of this floral decoration at various places. Interest in it is stimulated by annual competitions for which medals and prizes in cash are awarded

Harrogate Station Rejuvenated





Above: The façade of the remodelled L.N.E.R. station at Harrogate, the removal of railings and other obstructions now fully reveals the pleasing exterior of the buildings for the first time

Left: The station's "sales counter," as seen by the passenger. All public business and enquiries other than parcels traffic is transacted in this spacious glass-fronted office

Below: (left) Two of the transportable ticket racks in use at the issuing window; (right) the stationmaster's office

Express Goods Train Performance on the Southern Railway

(From a correspondent)

The standard of locomotive performance demanded by modern goods train schedules is well illustrated by a recent run made by the Southern Railway 7.38 p.m. vacuum-fitted train from Exeter to Nine Elms. When traffic is picked up at Templecombe, as on the occasion of this run, the arrival time at Nine Elms is 12.51 a.m.; the running average, allowing for the two stops, is 36 m.p.h.

The following is the log of the journey:—

Miles			m. s.	m.p.h.*
0·0	Templecombe	...	0 00	
2·0	Mile Post 110	...	3 35	48
4·5	Mile Post 107½	...	7 38	31
6·8	Gillingham ...	...	10 55	52½
10·9	Semley ...	...	18 55	24½
20·2	Dinton ...	...	31 55	49
25·9	Wilton ...	...	40 30	—
28·4	Salisbury ...	...	47 05	
0·0	... ...	...	0 00	
5·5	Porton ...	...	14 52	25
11·0	Grateley ...	...	27 33	
			p.w. check	60†
17·4	Andover ...	...	39 15	
31·4	Oakley ...	...	65 54	41
36·0	Basingstoke ...	...	71 55	58
50·6	Farnborough ...	...	90 53	41‡
59·4	Woking ...	...	102 28	52
71·8	Surbiton ...	...	119 28	
			Signals	
76·5	Wimbledon ...	...	129 40	
79·9	Clapham Junction	...	137 12	
			Signals	
82·0	Nine Elms ...	...	147 20	

* Speeds at or near points shown. † Before check. ‡ At Mile Post 31.

The load from Templecombe was 43 vans and a bogie brake van, a total weight of about 500 tons on 90 axles. Over the hilly line to Salisbury good work was done by No. 826 (Class A, 5 ft. 7 in. 4-6-0). After attaining a speed of 48 m.p.h. by the end of the two miles of favourable grades from the start, with a 35 per cent. cut-off and the regulator $\frac{5}{8}$ open, 2½ miles rising at 1 in 90-100 brought the rate down to 31 at Buckhorn tunnel. The dip through Gillingham produced a maximum speed of 52½ m.p.h., while the minimum at Semley, after 4 miles up at 1 in 130-114-100 was 24½ m.p.h. Here the cut-off was reduced to 20 per cent. and the regulator moved to about one-quarter open. Exact time was kept from Templecombe to Salisbury.

West of Templecombe the load had been only about 200 tons on 36 axles, so that considerably less effort was needed. Cut-off was kept at 20 per cent. throughout, and even on the ascent to Honiton tunnel the regulator was never more than $\frac{3}{8}$ open. The minimum speed on the 1 in 90 of this ascent was 23 m.p.h., and at Broad Clyst the maximum speed of 65 m.p.h. was attained.

At Salisbury No. 826 was exchanged for No. 778 *Sir Pelleas*, of the "King Arthur" 4-6-0 class. Minimum speed up the 1 in 140 of Porton bank was 25 m.p.h., while before a check at Andover a maximum of 60 m.p.h. was reached. This slowing came very awkwardly at the foot of a three-mile rise at 1 in 178, and it took some time to get into speed again. Over the generally favourable 26.1 miles from Basingstoke to Byfleet an average of 46 m.p.h. was maintained, with a maximum of 58. By dint of smart station working at Templecombe and Salisbury, the time allowed at these two stops had been cut by five minutes so that Salisbury was left before time, and despite the Andover check a punctual arrival at Nine Elms would have been easily possible but for the delays from Wimbledon inwards. The net time from Salisbury to Nine Elms was about 130 minutes, an average of 38 m.p.h.

When this train is made up to a full load (100 axles) or nearly so at Exeter, the stop at Templecombe is cut to only four minutes, to take water, and Nine Elms is reached at 12.38 a.m.

In comparing this performance with that of an express passenger train of similar weight, two factors must be borne in mind, namely, that the speed is limited to a maximum of 60 m.p.h. and that the train resistance is considerably greater. A passenger train of 500 tons loaded weight would consist of 14 bogie coaches, 56 axles as against 90 axles of the goods train. The journal friction would be proportionately greater in the latter case. Apart from this the goods train would pull much more heavily, due to greater flange friction caused by the perpetual "nosing" of the vans. Looking back from the footplate on fast stretches such as Honiton-Seaton Junction and Semley-Wilton, this irregularity in running was quite marked. The increased "drag" was especially reflected in the working of engine No. 778; the cut off was 30 per cent. from Salisbury up to Grateley and 25 per cent. for the rest of the run, figures which would normally produce considerably higher speeds with a passenger train.

Modernising Harrogate Station, L.N.E.R.

The principles underlying the alterations at Harrogate station, L.N.E.R., are discussed in an editorial article elsewhere in this issue, and the photographs reproduced opposite show the leading features of the reconstruction. It will be seen that the new main booking office is of the glass-fronted type recently installed at Scarborough and Newcastle, with the panels framed in Staybrite steel. The movable ticket racks, which can be wheeled to the windows as required for issue or to the desks for the balance of accounts, have been constructed to the design of Mr. John Miller, the Engineer of the North Eastern Area, L.N.E.R. They are built of oak, with brass fittings for the ticket tubes. All public business other than that connected with parcels traffic is centralised in this office. The removal of the old booking office has enabled the circulating area of the station to be increased, and advantage will be taken of the additional space available by the erection of three shops or showcases.

The waiting rooms have been redecorated with bright carpets and linoleums. Their furniture now includes smaller tables and Lloyd loom chairs. A new lounge is also to be fitted up in a room communicating with the main concourse. This will offer a standard of comfort considerably higher than that of the usual general waiting room, and being available for both sexes will abolish the temporary divorcement hitherto necessary when couples sought the slightly improved amenities of the segregated ladies' and gentlemen's accommodation.

Brighter colours are to be used throughout in the embellishment of the station, but as Harrogate was not down in the Engineer's renewal programme this year, this part of the work will not be carried out until 1935.

The Fate of the Chinese Eastern Railway.—Negotiations between Manchukuo and the U.S.S.R., concerning the Chinese Eastern Railway, now appear to have broken down, if not finally, at any rate for some time to come. Mr. Chuichi Ohashi, the Manchukuo Vice-Foreign Minister and chief delegate in the negotiations, after 15 months' participation in them, has left Tokio for Hsinking. Mr. Hirota's compromise proposals, though acceptable to Manchukuo, have been summarily rejected by the Soviet Government, whose counter proposals have been considered farcical by Manchukuo. The railway will, in the event of final rupture of negotiations, presumably, be treated as a purely commercial organisation in Manchukuo territory, and be subject to ordinary laws applicable in such cases.

British Industries House.—Hereford House Limited, sponsored by a number of large assurance companies, has bought the lease of the late Gamage building in Oxford Street, W.1, and intends to make it a centre for overseas buyers of British goods. The scheme, which is in no way associated with the Federation of British Industries or any other association, is being run as a business enterprise.

Ten Years of Railway Developments in Turkey

The last Sultan of Turkey fled from his country on November 20, 1922, and the responsibility of government rested with the National Assembly. At this time an important programme of railway construction was evolved with a view to the development of Turkey-in-Asia, and in the intervening decade since the formal declaration of the Turkish Republic on October 29, 1923, much of this programme has been carried out.

At first an ambitious project, known as the Chester Scheme, was ratified by the National Assembly on April 9, 1923, by which, under agreement with the Government, the Ottoman-American Development Company undertook to build upwards of 3,000 km. of standard gauge railway in east and south-east Anatolia, in return for mining rights for 20 km. on either side of the projected lines over all metallic deposits, petroleum, stone, and sand quarries in which no third party already held a vested interest.

By the terms of the agreement the company was granted a period of 7 months in which to begin work, but owing to difficulties in finding the necessary capital the contract could not be fulfilled, and was annulled by the Turkish Government. Thereafter the Government arranged for the piecemeal construction of the requisite railways in order of importance, and at the end of 1933 almost 2,000 km. of new line had been completed.

The nucleus of the state railway system is the Anatolian Railway extending from Haidar Pacha to Konia, with a branch from Eski Shehr to Ankara. Before the war of 1914-1919 the shares of the concessionaire company for this railway were mainly in German hands, the same group also controlling the Baghdad Railway Company (with powers for a line from Konia to Baghdad and the Persian Gulf), and the Mersina-Tarsus-Adana Railway Company. On January 15, 1919, British forces officially assumed control of the Anatolian Railway, but by the end of 1923 the whole of this system had passed under the administration of the Turkish Government pending a final settlement as to its eventual fate. The Government continued to work the line, and by agreement of December 10, 1928, purchased the rights of the old company for 443,757,500 Swiss francs ; the Mersina-Tarsus-Adana Railway purchase was completed for 6,157,325 Swiss francs. Of the former property of the Baghdad Railway, the Turkish Government took over the section from Konia to Yenice and subsequently the portion thence to Fevzipasa.

After the war the Mersina-Tarsus-Adana Railway and the main line of the Baghdad Railway east of Yenice (together with its branches to Alexandretta and to Mardin) were worked by a French company known as the Chemin de fer de Cilicie-Nord Syrie, which took over the operation in 1922, but not the ownership. After the Turkish Government had purchased the Mersina-Tarsus-Adana line, the railways east of Yenice were worked by the Société d'Exploitation des Chemins de fer Bozanti-Alep-Nissibine & Prolongements, which was admitted as an administrative member of the Union Internationale des Chemins de fer in November, 1928. On July 1, 1933, this company ceased to operate the lines of which it had charge and went into liquidation. As already mentioned, the Turkish Government has taken over the Yenice-Fevzipasa section. An undertaking known as the Société Turque d'Exploitation des Chemins de fer du Sud de la Turquie has assumed responsibility for those sections in Turkish territory, namely, Toprak Kale to Payas, Fevzipasa to Medain-Ekbese, and Tchoban Bey to Nisibin. The remaining portions, which are in Syria, were handed over for operation to the Société du Chemin de fer du Damas-Hamah et Prolongements ; these are Payas to Alexandretta, Medain - Ekbese to Aleppo, Mouslimie to Tchoban Bey, and Nisibin to Tel Ziouane.

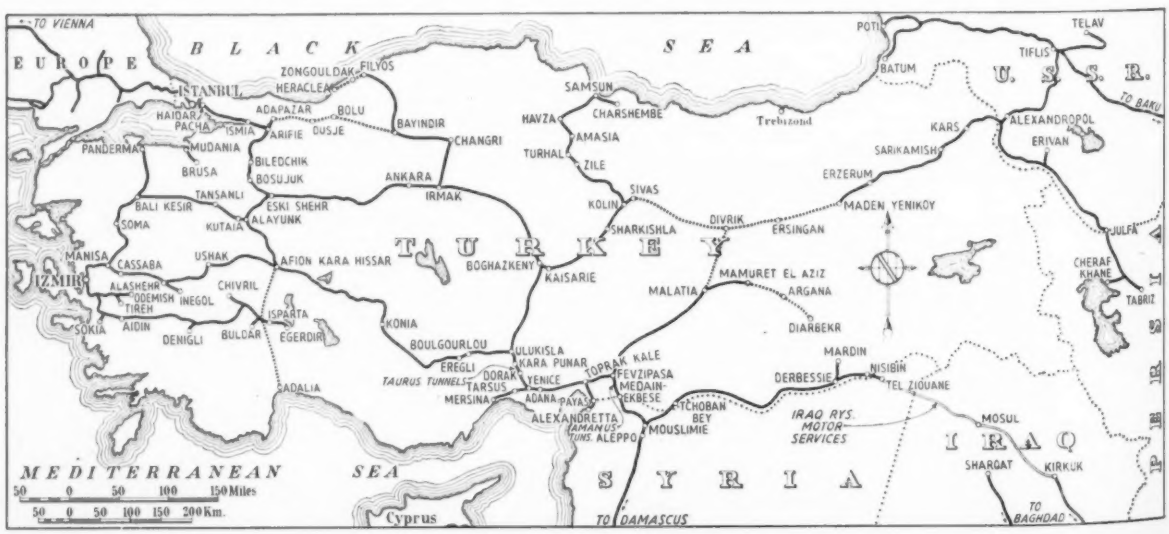
Samsun-Sivas

The building of this line was undertaken in 1911 and was continued until the beginning of 1914. Owing to inadequate appropriations, the transfer of the construction to the French Régie Générale was decided upon, but the outbreak of the war stopped further action. Studies were made in 1920 for the completion of the line, and in 1922 it was included in the Chester project, but not until early in 1924 was construction actually begun with funds appropriated by the Government. The first rail was formally laid by the Ghazi on September 23, 1924. The section from Samsun to Havza was completed in September, 1927, and on November 21 of the same year Amasia was reached. By 1930 traffic was being maintained as far as Zile, a distance of 220 kilometres (137 miles). The construction of the Turhal-Sivas section was provided for in the contract signed with a Belgian group for the construction of the Kaisarié-Sivas section of the Ankara-Sivas Railway.

This contract was cancelled in 1927 and the Government undertook the work. From Amasia the railway was slowly laid up the steep slopes of the central plateau of Anatolia, and in 1932 it reached Sivas, there joining the Ankara-Sivas line.

Ankara-Sivas

The project for a railway from Ankara to Erzerum via Sivas was discussed as early as 1908, and work was commenced in 1914. By 1918 a narrow



Sketch map of the railways of Turkey in Asia

gauge line had been built as far as Irmak, 72 km. east of Ankara, and this was subsequently extended a further 55 km. In 1924 the National Assembly decided upon a route from Ankara to Kaisarié and thence to Sivas, as this route would traverse more important producing sections of the country. Standard gauge was adopted and the narrow gauge line taken up. The 204-km. section from Ankara to Yerkeuy was opened to traffic in 1925 and laying of track was continued through 1926. The section from Yerkeuy to Kaisarié, 176 km., completing the through line from Ankara to Kaisarié, 381 km. (237 miles) in length, was opened to traffic on May 29, 1927. On December 18, 1926, a contract was signed with a Belgian group giving it construction of the Kaisarié-Sivas section. During 1927 the contract with the Belgian group was cancelled, as the group was unable to carry out its obligations due to lack of adequate financial backing. The Government decided to complete the line to Sivas and continued the work during 1928 and 1929. The portion between Kaisarié and Sharkishla, 130 km., was opened on February 1, 1930, and the 51-km. thence to Sivas on August 30, 1930.

One of the principal objects of the Turkish Government in constructing these railways was no doubt the military consideration. The Kurdish campaign of 1925 and the frontier insurrections and raids of 1930 involved the movement of large punitive forces, and in each case it was the lack of railway communication that enabled the mobile rebel bands to score initial successes over isolated regular detachments.

Fevzipasa-Diarbekir and Irmak-Filyos

It was the military difficulties which it had encountered in Kurdistan which largely influenced the Turkish Government to enter into a contract in 1927 with a Swedish group headed by Nydquist & Holm, to build a strategic line from Fevzipasa on the Anatolian Railway to Diarbekr via Malatia and Argana, to be completed within 5½ years from June 1, 1927. The same group was also to build a railway from Irmak to Filyos on the Black Sea, with branches from Safranbolu to Seuyad-Eusu, and from Filyos to Heraclea. During 1929, a dispute between the Turkish Government and the Swedish group arose over the fixing of the price of construction. The sum of $55,000,000 was given as a preliminary estimate in the original contract, with provision for the submission, after surveying, of a final estimate on March 31, 1928. This final estimate proved to be considerably higher than the original estimate; a disagreement ensued, which became so serious that construction was suspended for several months prior to September, 1929. An accord was finally reached, however, by the terms of which it was agreed that the Swedish group should complete the building of the Irmak-Filyos line and make delivery of rolling stock on the basis of the original estimate of $55,000,000, using the remainder, as far as it will go, for the building on the Fevzipasa-Diarbekir line. In 1932 Nydquist & Holm completed the line to the river Euphrates near Malatia, but when the river had been bridged work was stopped for lack of funds. It has since been resumed under the direction of the Government and on August 10 (last week) was officially opened as far as Mamuret el Aziz by Fuad Bey, the Minister of Finance, and Ali Bey, the Minister of Public Works.

Kutaia-Bali Kesir and Kaisarei-Ulukisla

The German firm of Julius Berger & Co., financed by a syndicate of German banks headed by the Deutsche Orient Bank, with the German Government's support in the form of a guaranty totalling approximately thirty million reichsmarks, contracted for the construction of two lines: (*a*) Kutaia to Tansanli and from the latter point to Bali Kesir located on the Soma-Panderma line, totalling 251 kilometres (156 miles); and (*b*) from Kaisarie to Ulukisla, 180 kilometres (112 miles).

In addition to the Anatolian Railway and associated lines the Republican administration has purchased the Mudania-Brusa, 42 km. of metre gauge, which was formerly worked by the Société Anonyme Turque du Chemin de fer Moudania-Brousse. Although without a mileage guarantee it showed an operating profit. The company, controlled by a Franco-Belgium group, held the line under a concession of 1891. The line had been partly built by the Turkish Government before 1890, though never worked.

The Government also took over various railways built by Russia before and during the war, consisting mainly of Russian-gauge lines from the frontier to Sarikamish, and a narrow (0·75 metre) gauge line opened from Sarikamish to Erzerum on March 25, 1917, and subsequently extended to Maden Yenikoy. No recent reports of these are available and it is improbable that they are working regularly or that their condition and equipment would permit it. At the present time the Government programme includes the construction of a line some 530 km. (331 miles) long between Sivas and Erzerum to connect Turkey and the U.S.S.R. This line will cost approximately 80 million Turkish pounds* and the work is estimated to take eight years. It has not been made clear where the break of gauge will occur between the standard gauge used throughout Turkey and the broader gauge of the Russian lines, but the probable place is Erzerum. A branch from this proposed line to Malatia about 140 km. (87½ miles) is also contemplated.

The latest acquisition, reported in March, 1934, is the Izmir, Cassaba, & Extensions line, one of the oldest in Asia Minor. The original concession was granted to an English company in 1863. A small section of line was opened in July, 1865, and Cassaba reached in the following year. It was extended to Alashehr in 1873 and subsequently to Afion Kara Hissar, where it joins the Turkish State Railway (Anatolian line). An important branch from Manisa was opened as far as Soma in May, 1890, and eventually reached the Sea of Marmora at Panderma. The railway has been leased to a French company since 1893. Its traffic is mainly agricultural.

Only one line of importance remains in private hands, namely the British owned Izmir-Aidin Railway, and, as reported in THE RAILWAY GAZETTE as recently as August 3 last, it is believed that the Turkish Government will shortly enter into negotiations with a view to buying the remainder of the concessions (prolonged to 1950 under a convention of 1906) and thus secure control of all the main line railways in Asiatic Turkey.

The 1934 Programme

The next stage in Turkish railway development was indicated by the Minister of Public Works in a speech in Parliament in May of the present year. The programme provides for the construction of new lines at a total cost of about 100 million Turkish pounds of which the chief are the 30-mile coal railway from Filyos to Heraclea; the linking up of the Anatolian Railway at Afion Kara Hissar with Adalia on the south coast of Asia Minor, a distance of about 256 km. (160 miles); and the extension of the short Adapazar branch to Bolu, 104 km. (65 miles), with a view to eventual joining up at Bayindir with the Irmak-Filyos line.

Electric Traction

So far no lines in Asia Minor have been worked with electric traction, but consideration is now being given to its adoption in suitable districts. As recorded in THE RAILWAY GAZETTE of July 13 last, the question of equipping for electric traction the Zongouldak-Heraclea section of the proposed Filyos-Heraclea line is now being studied.

With regard to existing lines, plans are being prepared for the electrification of the heavily-graded Biledchik-Bosujuk section of the main Anatolian Railway. Current would be supplied by two hydro-electric power stations to be built on the rivers Sakaria and Karasu, the courses of which the railway follows.

In designing these power stations the possibilities are to be borne in mind of ultimate electrification of the whole Haidar Pacha—Ankara main line.

The up-to-date steam rolling stock of the Turkish State Railways is well exemplified by the illustrated article on pages 274 and 275, in which standard locomotives of the 4-8-0 passenger and 2-10-2 goods types are shown. On page 276 will be found a series of pictures depicting scenes on the Turkish State Railways.

* At the current range of exchange the Turkish pound equals approximately 3s. 3d.

British Railwaymen's Wages

The negotiations between the railway General Managers and representatives of the three railway trade unions on the claim of the unions for the cancellation of the wage cuts introduced in March, 1931, were concluded on Friday last, August 10, with the signing of an agreement providing for a partial restoration, by two stages, of the percentage deductions from earnings.

In the discussions, the General Managers strongly opposed the claim of the unions, holding that, from the financial point of view, there was no justification for restoration of the cuts, either wholly or in part. Figures were given showing that the net revenue for the year 1930, when the railway companies made their application to the National Wages Board for wages relief, was about £37¾ millions, and although the Wages Board had awarded concessions to the companies to the value of about £4,600,000 per annum, the net revenue for 1931 was only £33,370,000; for 1932, £26,400,000; and for 1933, £28,800,000. While, for the first six months of 1934, the net revenue was about £2 millions in excess of the figure for the corresponding period of the previous year, the position was still far below what could be regarded as normal.

The union representatives argued that the existing reductions, which had been accepted by the men in 1931 with much reluctance, were of a temporary character, and that, having regard to the improvement in traffic receipts, the cuts should now be discontinued. In support of their claim, they pointed to the restorations in pay-cuts which had been effected in other industries, by the Government and local authorities. They also referred to the large reductions which had been made in the numbers of railway staff since 1930 as well as to the many cases of reductions in grading as a result of economy measures with which they had co-operated loyally.

While adhering to their view that no case existed for any restoration of the cuts, the General Managers ultimately offered a partial restoration in January next. The unions, however, pressed for this to apply with immediate effect, and finally the General Managers agreed, as proof of goodwill on their part, that one-half of the proposed concession should operate from the beginning of October.

The proposal was considered by delegate conferences of the unions, and after further discussion with the companies' representatives, an agreement, of which the following is the full text, was signed.

It is agreed that the percentage deductions from earnings at present operating under Clause 99 of National Wages Board Decision No. 119 shall be replaced by the following arrangements—

Conciliation Grades

1. As from the first full pay following October 1, 1934, all earnings, except as provided for in paragraphs 3 and 4, shall be subject to a deduction of 2½ per cent. with a further deduction of 1¼ per cent. in respect of all earnings in excess of 40s. per week.

2. As from the first full pay following January 1, 1935, all earnings, except as provided in paragraphs 3 and 4, shall be subject to a deduction of 2½ per cent.

3. With a view to alleviating certain anomalies in regard to male adults whose base rates do not exceed 44s. per week, the percentage deductions shall be adjusted in accordance with the following scale:—

Earnings not exceeding 40s. 6d. in a full week, no deduction.

Earnings 40s. 7d. and over but under 42s. 6d. in a full week, 6d.

Earnings 42s. 6d. and over but under 44s. 0d. in a full week, 9d.

Earnings 44s. 0d. and over but under 44s. 6d. in a full week, 1s. 0d.

4. In no case shall any deduction exceed the sum of 6s. 0d. a week.

Clerical, Supervisory and Other Salaried Staff and Staff Paid on Salary Equivalent Basis

5. As from the first full pay following October 1, 1934, all earnings, except as provided in paragraph 7, shall be subject to a deduction of 2½ per cent. with a further deduction of 1¼ per cent. in respect of all earnings in excess of £100 per annum.

6. As from the first full pay following January 1, 1935, all earnings, except as provided in paragragh 7, shall be subject to a deduction of 2½ per cent.

7. In no case shall any deduction exceed the sum of £15 per annum.

The agreement is signed by the following:—

On behalf of the railway companies:—Sir James Milne (for the G.W.R.); Mr. W. V. Wood (for the L.M.S.R.); Sir Ralph L. Wedgwood (for the L.N.E.R.); Sir Herbert A. Walker (for the Southern Railway).

On behalf of the trade unions:—Messrs. John Marchbank (for the National Union of Railwaymen); W. J. R. Squance (for the Associated Society of Locomotive Engineers and Firemen); A. G. Walkden (for the Railway Clerks' Association).

Particulars of the present cuts in remuneration and modifications in conditions of service which have operated from the beginning of April, 1931, were given in our issue of May 25. Briefly, the existing position is that all earnings of conciliation staff are subject to a deduction of 2½ per cent. with a further deduction of 2½ per cent. from earnings in excess of 40s. a week; provided that the earnings of men whose base rates are under 41s. a week are not reducible below their base rates and that in no case is the deduction to exceed 6s. a week. In the case of salaried staff, the present arrangement is a deduction of 2½ per cent. from all earnings with a further deduction of 2½ per cent. from earnings in excess of £100 per annum, provided that the total deduction is not to exceed £15 per annum.

The effect of the new agreement is to reduce the percentage deductions from that portion of the earnings which exceeds 40s. a week (£100 per annum in the case of salaried staff) from 5 per cent. to 3¾ per cent. as from the beginning of October next, and from 3¾ per cent. to 2½ per cent. as from the beginning of January, 1935. From the latter date, therefore, the deduction will be one of 2½ per cent. from all earnings.

The full percentage deductions are not, however, to apply to male adults whose base rates do not exceed 44s. a week and whose earnings are less than 44s. 6d. in a full week. For such men a lower scale of deductions is provided in clause 3 of the agreement.

The following examples serve to illustrate the operation of the new agreement in the case of individual railwaymen earning the amounts shown:—

Earnings for week before percentage deduction	Present deduction	Deduction from October 1, 1934	Deduction from January 1, 1935	Ultimate betterment in earnings
s. d.	s. d.	s. d.	s. d.	s. d.
40 0	Nil.	Nil.	Nil.	—
42 6	1 2	— 9	9	5
50 0	1 6	1 5	1 3	3
60 0	2 0	1 9	1 6	6
70 0	2 6	2 2	1 9	9
80 0	3 0	2 6	2 0	1 0
90 0	3 6	2 11	2 3	1 3

Further agreements were also signed on August 10 by representatives of the railway companies and of the National Union of Railwaymen affecting restaurant car travelling staff and certain other smaller groups of staff, providing for concessions on similar lines to those set out in the main agreement quoted above.

So far as the railway shopmen are concerned, a meeting of the National Railway Shopmen's Council took place on the afternoon of August 10 with a view to arriving at a similar settlement, but the meeting adjourned and no agreement has so far been announced. The shop staff is at present subject to a deduction of 4½ per cent. (10d. in the £) from earnings under the terms of an agreement reached by the National Railway Shopmen's Council in March, 1931.

Allowing for concessions to shop staff and other groups of staff similar to those which have been agreed for the general body of railwaymen, the cost to the companies of the partial restoration of cuts is estimated at about £1,100,000 for a full year.

Stockholders' Views

While the wages negotiations outlined above were proceeding, the views of the railway stockholders on the situation were conveyed to the Railway Companies' Association in the following communication from the

British Railway Stockholders' Union Limited:—

DEAR SIR,—I am requested by my committee to inform you that for some time past they have viewed with increasing astonishment and apprehension the active campaign undertaken by the National Union of Railwaymen, and associated unions, in favour of an immediate return of the wage cuts. Scarcely less surprising, to their mind, has been the silence of the companies which has permitted an unanswerable case to go almost unstated and undefended.

It is not the desire of this union, nor, so far as we can ascertain, is it the wish of those stockholders who are not associated with us, to retain the cuts indefinitely. The cuts were imposed by the National Wages Board in 1931 on the ground that this economy was essential to the industry in view of the drop that had occurred in the net revenue of the companies during the preceding years. The continuance of the cuts, therefore—like their imposition—must depend solely upon the state of net revenue. In the opinion of my committee it would be extremely regrettable if an economy sanctioned, in the larger interests of the industry, solely upon the ground of revenue, were used as a bargaining point for other purposes. From such an attitude we entirely dissociate ourselves.

It may be advisable at this point, to recapitulate the facts. In 1930 the net revenue of the four groups together was £37,700,000. In 1931 this total had become £33,400,000. In 1933, in spite of the cuts, the total had decreased still further to £28,800,000. At the end of the present year net revenue may possibly have increased to £32,700,000, in which case it will be something like £5,000,000 below the 1930 total which the National Wages Board legitimately view with anxiety. Is this really the moment at which to discuss the immediate return of the cuts the Wages Board then imposed?

It is true that Mr. Marchbank, General Secretary of the National Union of Railwaymen, recently forecast an increase in net revenue during the present year of approximately £6,000,000. We should be glad to share his optimism. But even if he were right, the net revenue for 1934 would still be approximately £3,000,000 less than the net revenue upon which the Wages Board based its decision. His case is so bad that a few millions of pounds more or less does not affect it.

As has already been stated, this union is not concerned to reduce wages, or to keep wages at a low level. It is concerned merely with the capacity of the fund from which wages are payable. None the less, it is legitimate to point out that the average earnings of the adult male conciliation staff (that is, the men affected by the cuts), which were 28s. 5d. a week in 1914, were (in spite of the cuts), 62s. 2d. a week in 1933. Non adult railway employee earns less than £2 a week. Have the companies any reason to be ashamed of these figures, in view of the terrible losses they have sustained? We should have thought not.

Finally, we would direct your attention to the position of the stockholders. We have no desire to labour this point—it should not be necessary to do so. It should suffice to observe that for the year 1930, £35,923,810 of railway capital received no remuneration whatever, and that in 1933, no less than £311,253,585 of railway capital, consisting both of preference and ordinary stock, went without dividend, while on £208,431,564 of preference stock, only part of the dividend was paid. It would appear that a modest 4 per cent. upon the ordinary stocks of the companies will require a net increase over the 1933 revenue of £16,400,000.

My committee would urge the companies to deal with this matter firmly and frankly, with confidence in the innate sense of fair-play that is common to Englishmen in all ranks of life.

I am, your very truly,
ASHLEY BROWN,
General Secretary.

The British Railway Stockholders' Union Limited,
25, Victoria Street,
London, S.W.1.

August 9, 1934.

New Railway Air Route and Mail Service

Railway Air Services Limited having announced that it will commence to operate the new L.M.S.R. service between London, Birmingham, Manchester, Douglas, Belfast, and Glasgow on Monday, August 20, the Postmaster General has decided to begin simultaneously the new internal air mail service, particulars of which were given in an editorial note in THE RAILWAY GAZETTE for July 27 last. The service, which will be maintained by new DH86 aeroplanes (see THE RAILWAY GAZETTE for June 1 last), will operate as shown in the timetable below. A supplementary service for the conveyance of mails and freight only will be operated between Manchester, the Isle of Man, and Belfast.

Glasgow	... ...	dep.	9 15 a.m.
Belfast	... ...	arr.	10 5 a.m.
,,	... ...	dep.	10 25 a.m.
Manchester	... ...	arr.	11 55 a.m.
,,	... ...	dep.	12 10 p.m.
Birmingham	... ...	arr.	12 40 p.m.
,,	... ...	dep.	12 45 p.m.
Croydon	... ...	arr.	1 35 p.m.
,,	... ...	dep.	3 10 p.m.
Birmingham	... ...	arr.	4 0 p.m.
,,	... ...	dep.	4 5 p.m.
Manchester	... ...	arr.	4 35 p.m.
,,	... ...	dep.	4 50 p.m.
Belfast	... ...	arr.	6 20 p.m.
,,	... ...	dep.	6 40 p.m.
Glasgow	... ...	arr.	7 30 p.m.

The new internal air mail services will provide facilities between the towns on routes operated by Railway Air Services Limited.

The service will be experimental and will be restricted for the present to correspondence posted at the places mentioned for addresses in the town areas of other places on the air routes. Letters intended for air transmission should bear the air mail label. The inclusive postage rates for letters and packets will be 1½d. for the first two ounces and 1d. for each additional ounce; the rate for postcards will be 1d. each.

The latest posting times at the head post offices in the towns between which the new air mail service will operate are given below.

Office	Latest posting time	Places served
Glasgow ...	a.m. 8 0	Belfast, Isle of Man, Manchester, Birmingham, London, Bristol, Southampton, Cowes.
Belfast ...	a.m. 9 15	Isle of Man, Manchester, Birmingham, London, Bristol, Southampton, Cowes, Liverpool.
	p.m. 5 35	Glasgow.
Douglas (Isle of Man)	a.m. 10 0	Manchester, Birmingham, London, Bristol, Southampton, Isle of Wight.
	p.m. 4 30	Belfast, Glasgow.
Manchester ...	a.m. 10 30	Birmingham, London, Bristol, Southampton, Cowes.
	p.m. 3 30	Isle of Man, Belfast, Glasgow.
Birmingham...	a.m. 8 30	Bristol, Southampton, Isle of Wight, Cardiff, Plymouth.
	11 30	London.
	p.m. 1 0	Bristol, Southampton, Cowes.
	3 0	Manchester, Isle of Man, Belfast, Glasgow.
	5 45	Liverpool.
London (King Edward St., E.C.1)	p.m. 1 0	Birmingham, Manchester, Isle of Man Belfast, Glasgow, Liverpool.
Liverpool ...	a.m. 7 30	Birmingham, Cardiff, Plymouth, Bristol, Southampton, Cowes.
Cardiff ...	a.m. 9 30	Bristol, Southampton, Isle of Wight.
	10 0	Plymouth.
	11 45	Birmingham, Manchester, Isle of Man, Belfast, Glasgow, Bristol, Southampton, Cowes.
	p.m. 4 30	Birmingham, Liverpool,
Plymouth ...	p.m. 3 30	Cardiff, Birmingham, Liverpool.
Bristol ...	a.m. 9 45	Southampton, Isle of Wight.
	p.m. 12 15	Birmingham, Manchester, Isle of Man, Belfast, Glasgow.
	2 30	Southampton, Cowes.
	5 0	Birmingham, Liverpool.
Southampton	a.m. 10 30	Isle of Wight.
	11 15	Bristol, Birmingham, Manchester, Isle of Man, Belfast, Glasgow.
	p.m. 3 0	Cowes.
	4 0	Bristol, Birmingham, Liverpool.
Cowes ...	a.m. 11 0	Southampton, Bristol, Birmingham, Manchester, Isle of Man, Belfast, Glasgow.
	p.m. 4 0	Southampton, Bristol, Birmingham, Liverpool.

In some instances, in order to obtain acceleration in delivery over the ordinary post, it is necessary to prepay an express fee. Precise information on this point is obtainable at local post offices in the towns concerned.

NOTES AND NEWS

Wroxham, L.N.E.R.—The station at Wroxham, Norfolk, is to be rebuilt, including the provision of new station premises on the up platform and an alternative exit from the down platform.

London Transport Acquisition.—On Friday last, August 10, the London Passenger Transport Board took over the six buses of the Chocolate Express Omnibus Co. Ltd. An interesting feature of the transfer is that this independent operator was the first to work in London in the post-war period; the business was established in August, 1922.

Deficits on U.S. Railways.—The combined results for the first four months of the present year of all the Class I steam railways in the U.S.A. show deficits amounting to $27,000,000. No profit has been shown since 1931. Preliminary figures for the months of May and June show that operating expenses have increased so much that the net operating income was smaller than for the same period last year, although operating reserves were maintained or even increased.

U.S.A. Railway Pension Law Opposed.—The railroad companies are asking for an injunction to prevent the Federal Railroad Retirement Board from bringing into operation the Pension Law which was passed by the last Congress. It is asserted that this law violates the Commerce clause as well as the Fifth Amendment to the Constitution by taking property without due process of law. It will involve the railroads in the expenditure of an additional $66,000,000 a year.

Ulster Hauliers and Transport Co-ordination.—We understand that the Northern Ireland Provincial Hauliers' Association has decided by a large majority to support the Government in the application of its scheme for road and rail transport co-ordination, based on the recommendations of Sir Felix Pole. The Association has requested the Northern Ireland Government to confer with the interests concerned regarding certain difficulties, and it is suggested that Sir Felix should preside over the proposed conference. Details of the scheme were published in our issue of July 27.

New South American Diesels.—As a result of an agreement with Sir W. G. Armstrong-Whitworth & Co. (Engineers) Ltd., the Buenos Ayres Western Railway is about to put into regular trial service two diesel-electric trains, both of which have now been shipped to the River Plate. The first is a 450-b.h.p. unit with an Armstrong-Sulzer engine, in which the vehicle housing the power plant is articulated to the remainder of the train, a method adopted by Armstrong-Whitworth for the São Paulo Railway train constructed last year, and described in the *Diesel Railway Traction Supplement* for December 1, 1933. The second unit is a 140 b.h.p. semi-streamlined railcar with an Armstrong-Saurer engine.

Collision in Germany.—Two trains collided at Halle early on Sunday morning last. One was electrically hauled. Two persons were killed and a number injured.

Railway "C.O.D." Service Extension.—The arrangement recently announced by the railway companies for the collection on delivery of the value (not exceeding £40) of parcels and goods handed to them for conveyance by rail has now been extended to traffic intended for conveyance by railway road transport throughout (including cartage within town limits). The arrangement applies to consignments of any size or weight between all points in Great Britain (with one or two minor exceptions) and also with certain Continental ports. C.O.D. consignments may be sent up to a value not exceeding £40, and a small commission fee, varying from 6d. for values up to 10s. to 2s. for values between £25 and £40, is levied according to the value of the consignment. It is anticipated that the facilities provided by this scheme will become highly popular and lead to increased quantities of farm produce and other articles being purchased on "cash on delivery" terms.

L.P.T.B. Railways and Rates.—The Railway Assessment Authority, in its annual report for the year ended March 31, 1934, draws attention to the difficulty being experienced in bringing into operation a scheme of assessment for the undertaking of the London Passenger Transport Board (other than the road transport part) as from April, 1936. "With a view to furthering the preparation of a scheme," states the report, "we communicated with the board and with the Central Valuation Committee. The latter expressed the opinion that a scheme should be prepared without delay and requested that any such scheme might be forwarded to the Committee for its consideration before its submission to you (the Minister of Health) for approval. The board did not indicate that it proposed to take any initiative in preparing a scheme and, in view of the expression of opinion by the Central Valuation Committee, we felt that we had no alternative but to proceed in the matter. In December, 1933, we forwarded the first draft of a scheme to the board and the committee and by the end of the year under review we had received from the committee certain comments by the local authorities affected, but there appeared to be no prospect of an early receipt of the board's observations. It seems to the Authority that, unless greater expedition is made in this matter, there is a real danger that the scheme will not be approved and in force in time to enable the work of valuation to be even effectively commenced (quite apart from its being completed) before April, 1936 (the date when the valuation would ordinarily take effect for rating purposes)."

Excursions to see Blasting in Italy.—The Italian State Railways last Saturday ran excursions to see an exceptionally large blast in the Carrara marble quarries.

New Leeds-Paris Air Service.—London Scottish & Provincial Airways Limited has begun to operate a service between Leeds and Paris, with intermediate stops at Nottingham and London (Heston). There are two services a day in each direction, and the journey time is 3 hr. 20 min.

New Newcastle-Belfast Air Route.—We understand that Northern Airways has begun a new air service between Newcastle and the Isle of Man, with an intermediate stop at Carlisle. Up to the present, the service is not operating to Belfast, passengers for Northern Ireland being able to make a connection with Hillman's Airways planes at the Isle of Man. It is reported, however, that the service is to be extended to Belfast in the immediate future.

Accompanied Children Free on Polish Railways.—The Polish State Railways arranged that between July 8 and 25 any adult traveller buying a full-fare ticket might take with him free of charge four children up to the age of 14. In these 18 days 548,000 passengers were conveyed, while in the same period of 1933 the figure was only 80,000. The experiment is therefore considered highly successful.

New Grimsby Fish Dock.—The new fish dock at Grimsby, which has cost over £1,500,000, and has taken nearly four years to build, will be opened on October 4 by Sir Henry Betterton. The new dock will provide additional water area of 37 acres, making with old docks, a total of 66 acres. An article describing the construction of the dock, with a plan of the site, appeared in THE RAILWAY GAZETTE of June 23, 1933.

Wireless on L.N.E.R. Trains.—The L.N.E.R. reports that 12,000 passengers by East Coast route expresses have hired headphones to listen-in to broadcast programmes while travelling. The first train in Great Britain to be fitted with wireless receiving apparatus was an L.N.E.R. express between King's Cross and Leeds, which was equipped in 1930. Owing to the running times not coinciding with the best broadcast period, this equipment has been withdrawn and two Anglo-Scottish expresses have been fitted instead. These trains leave King's Cross for Edinburgh at 1.20 p.m. and Edinburgh (Waverley) for King's Cross at 2.5 p.m., arriving at 9.10 and 9.55 p.m. respectively. Each train is equipped with an electric

gramophone and if the broadcast items are unsuitable, passengers are entertained by means of gramophone records.

The Week's Road Accidents.—The Secretary to the Ministry of Transport has issued the following return for the week ended August 4, of persons killed or injured in road accidents :—

	Killed in accidents reported during the week	Reported during the week as having died as the result of accidents occurring in previous weeks	Injured in accidents reported during the week
	No.	No.	No.
England ...	102	25	4,940
Wales ...	7	2	222
Scotland ...	11	1	466
	120	28	5,628

The total fatalities of the week, as the result of road accidents, were, therefore, 148, as compared with 157 for the previous week. The numbers of persons reported as having died as a result of accidents which occurred during the August Bank Holiday period, 1934, compared with the corresponding period in 1933, are as follow :—

	1934	1933
Friday	17	25
Saturday	35	35
Sunday	20	28
Monday	24	25
Tuesday	21	31
Total	117	144

The figures are not strictly comparable, as deaths frequently occur some time after an accident has taken place. The 1934 figure will, probably, be increased in the final return.

French Railway Accident.—A Geneva-Ventimiglia express became derailed at Avignon station early on the morning of August 12 with the result that eight persons lost their lives and 32 were injured. The locomotive turned over on its side in the station, and it is suggested that the cause of the derailment was excessive speed over a turnout on which a restriction was in force.

British and Irish Railway Traffic Returns

GREAT BRITAIN	Totals for 32nd Week			Totals to Date		
	1934	1933	Inc. or Dec.	1934	1933	Inc. or Dec.
	£	£	£	£	£	£
L.M.S.R. (6,940¾ mls.)						
Passenger-train traffic...	733,000	740,000	– 7,000	15,247,000	15,017,000	+ 230,000
Merchandise, &c. ...	350,000	327,000	+ 23,000	14,035,000	12,908,000	+1,127,000
Coal and coke ...	147,000	129,000	+ 18,000	7,147,000	6,838,000	+ 309,000
Goods-train traffic ...	497,000	456,000	+ 41,000	21,182,000	19,746,000	+1,436,000
Total receipts	1,230,000	1,196,000	+ 34,000	36,429,000	34,763,000	+1,666,000
L.N.E.R. (6,339 mls.)						
Passenger-train traffic...	491,000	476,000	+ 15,000	9,748,000	9,632,000	+ 116,000
Merchandise, &c. ...	251,000	256,000	– 5,000	9,766,000	8,918,000	+ 848,000
Coal and coke ...	180,000	169,000	+ 11,000	7,169,000	6,540,000	+ 629,000
Goods-train traffic ...	431,000	425,000	+ 6,000	16,935,000	15,458,000	+1,477,000
Total receipts	922,000	901,000	+ 21,000	26,683,000	25,090,000	+1,593,000
G.W.R. (3,750 mls.)						
Passenger train traffic...	335,000	341,000	– 6,000	6,369,000	6,408,000	– 39,000
Merchandise, &c. ...	123,000	122,000	+ 1,000	5,644,000	5,221,000	+ 423,000
Coal and coke ...	58,000	56,000	+ 2,000	3,112,000	3,082,000	+ 30,000
Goods-train traffic ...	181,000	178,000	+ 3,000	8,756,000	8,303,000	+ 453,000
Total receipts	516,000	519,000	– 3,000	15,125,000	14,711,000	+ 414,000
S.R. (2,176 mls.)						
Passenger-train traffic...	440,000	437,000	+ 3,000	9,263,000	9,144,000	+ 119,000
Merchandise, &c. ...	52,000	51,000	+ 1,000	1,995,000	1,903,500	+ 91,500
Coal and coke ...	19,000	22,000	– 3,000	983,000	922,500	+ 60,500
Goods-train traffic ...	71,000	73,000	– 2,000	2,978,000	2,826,000	+ 152,000
Total receipts	511,000	510,000	+ 1,000	12,241,000	11,970,000	+ 271,000
Liverpool Overhead ... (6½ mls.)	1,536	1,535	+ 1	36,596	35,976	+ 620
Mersey (4½ mls.) ...	4,006	4,790	– 784	131,608	127,069	+ 4,539
*London Passenger Transport Board ...	517,800	519,000	– 12,000	3,172,700	3,140,200	+ 32,500
IRELAND						
Belfast & C.D. pass. (80 mls.)	3,673	4,417	– 744	81,030	82,318	– 1,288
" " goods	438	458	– 20	16,605	16,813	– 208
" " total	4,111	4,875	– 764	97,635	99,131	– 1,496
Great Northern pass. (562 mls.)	18,200	16,750	+ 1,450	308,400	222,450	+ 85,950
" " goods	7,900	8,100	– 200	261,050	187,900	+ 73,150
" " total	26,100	24,850	+ 1,250	569,450	410,350	+ 159,100
Great Southern pass. (2,158 mls.)	40,791	44,533	– 3,742	754,881	736,269	+ 18,612
" " goods	24,930	24,837	+ 93	1,003,130	947,697	+ 55,433
" " total	65,721	69,370	– 3,649	1,768,011	1,683,966	+ 84,045

* 6th week, the receipts for which include those undertakings not absorbed by the L.P.T.B. in the corresponding period last year ; last year's figures are however adjusted for comparative purposes

British and Irish Railway Stocks and Shares

Stocks	Highest 1933	Lowest 1933	Prices Aug. 15, 1934	Prices Rise/Fall
G.W.R.				
Cons. Ord. ...	55½	31	51½*	+½
5% Con. Prefce. ...	109¾	69½	112*	–1
5% Red.Pref.(1950)	109¼	87½	109½*	–1
4% Deb. ...* ...	108 15/16	99¼	109½	+½
4½% Deb.... ...	108	100¾	111½	+2
4½% Deb.... ...	116	106	118½	+1
5% Deb.	128	117¼	128	+1
2½% Deb.... ...	65	60	69½	—
5% Rt. Charge ...	124	111½	126½	—
5% Cons. Guar. ...	122	103	124½*	–1
L.M.S.R.				
Ord.	29⅞	12⅛	23	+1
4% Prefce. (1923)	51	17	48	+3½
4% Prefce. ...	72	33¼	80*	+½
5% Red. Prf. (1955)	93	47¼	99½*	+½
4% Deb.	103¼	89½	103	+½
5% Red.Deb.(1952)	114	105	113⅛	—
4% Guar.	97¼	68⅜	100*	—
L.N.E.R.				
5% Pref. Ord. ...	22½	7¾	16½	+2
Def. Ord.	10¾	4⅛	8¼	+¾
4% First Prefce. ...	65½	19⅝	63½	+1½
4% Second Prefc .	40½	12¼	31	+2
5% Red.Pref.(1955)	83¾	27	84	+1
4% First Guar. ...	94¾	58¼	94*	—
4% Second Guar.	89¼	48	88*	–½
3% Deb.	77	60¼	76½	+½
4% Deb.	102¾	80	101½	+½
5% Red.Deb.(1947)	112	102½	111½	—
4½% Sinking Fund Red. Deb.	107½	98¾	107½	—
SOUTHERN				
Pref. Ord.... ...	71	27¾	74	+2
Def. Ord.	24⅜	9⅜	23½	+1½
5% Prefce. ...	107 11/16	74	112*	–1
5% Red.Pref.(1964)	107¾	78⅞	111½*	—
5% Guar. Prefce.	124¼	102¾	124½*	–1
5% Red.Guar.Pref. (1957)	115⅜	103½	114*	–½
4% Deb.	107½	96¾	106½	+½
5% Deb.	126½	114¼	127½	—
4% Red. Deb. 1962–67	107¼	100	108½	+1
BELFAST & C.D.				
Ord.	6	4	5	—
FORTH BRIDGE				
4% Deb.	99½	95½	101⅛	—
4% Guar. ...	98½	94	102⅛	+2
G. NORTHERN (IRELAND)				
Ord.	7½	3½	5	—
G. SOUTHERN (IRELAND)				
Ord.	28	16	14	—
Prefce.	24	12⅛	16½	—
Guar.	42	16¾	46	—
Deb.	60	30⅞	63	—
L.P.T.B.				
4½% "A" ...	117⅞	112	118½	+½
5% "A"	127¼	119¼	128½	—
4½% "T.F.A." ...	111¼	106	110	—
5% "B"	122½	114	122	+1
"C"	86¾	74½	80*	—
MERSEY				
Ord.	16¼	5	12	—
4% Perp. Deb. ...	83	63⅞	86½	—
3% Perp. Deb. ...	62	51	64½	—
3% Perp. Prefce....	50⅝	27	51½	—

* ex-dividend.

CONTRACTS AND TENDERS

The Metropolitan-Cammell Carriage Wagon & Finance Co. Ltd. has received orders from the L.M.S.R. for 100 type A steel containers.

Orders for Road Vehicles.

We understand that the L.M.S.R. has placed orders for road trailer vehicles, divided as follow :—

Scammell Lorries Limited : 141 short type trailers; Cranes (Dereham)Limited : 50 short type and 50 long type trailers ; and J. Brockhouse & Co. Ltd. : 25 short type trailers.

The L.N.E.R. has placed orders for road vehicles as follow :—

Stewart & Ardern Limited : One 10-cwt. Morris Commercial van.

Scottish Motor Traction Co. Ltd. : Fourteen 2-ton light Bedford vans, four 2-ton Bedford articulated tractors.

Unwins Limited : 27 2-ton Fordson light vans, four 3-ton articulated trailers, two 3-ton articulated livestock trailers and three 6-ton articulated trailers.

Coaches for South Africa.

Details of 20 first-class and 30 second-class main line wooden-bodied coaches, for which tenders were recently invited by the South African Railways and Harbours Board, were given in this column in our issue for June 29. Orders have now been placed for these coaches as follow :—

Metropolitan-Cammell CarriageWagon & Finance Co. Ltd. : 30 second-class coaches.

Birmingham Railway Carriage & Wagon Co. Ltd. : 20 first-class coaches.

These orders have been secured by British firms in face of international competition.

Ringsprings Limited has secured a further order from the South African Railways Administration for 100 wagon sets of Ringspring draught gear for high-capacity wagons, two draught gear per wagon.

The Drewry Car Co. Ltd. has received a further repeat order from the Eagle Oil & Shipping Company for two 0-6-0 type diesel locomotives. This company has already in service two petrol and six diesel locomotives of the Drewry Car Company's manufacture and the repeat order may be taken to indicate that these engines are giving satisfactory and economical service.

The Chinese Government Purchasing Commission, on behalf of the Ministry of Railways, China, has placed the following orders to the inspection of the consulting engineers, Messrs. Fox & Mayo :—

Tangyes Limited: 18 Duplex steam pumps and boilers.

Horseley Bridge and Thomas Piggott Limited: 14 Steel water tanks of 30,000 and 10,000 galls. capacity.

Ruston Hornsby Limited: Four 10-in. centrifugal pumps and oil engines.

An order has also been placed to the inspection of Messrs. Fox & Mayo with British Insulated Cables Limited for one electric tube welding machine for the Hangchow-Kiangshan Railway.

The Birmingham Railway Carriage & Wagon Co. Ltd. has secured an order from the São Paulo Railway for 16 carriage bogies complete with solid disc wheels and axles.

Wright, Pinhorn & Partners Limited has secured orders from the Indian Stores Department for 5,000 volute drawbar springs at Rs. 18,437.

The Acme Manufacturing Co. Ltd. has received an order from the Indian Stores Department for 150 inter-carriage I.R.C.A. type electric couplers at Rs. 9,750.

J. Stone & Co. (India) Ltd., has received orders from the Indian Stores Department for 200 Imperiston carriage roof fans at Rs. 15,400 and 200 speed regulators at Rs. 2,050.

Saxby & Farmer (India) Limited has secured orders from the Indian Stores Department for 18,000 Spencer's patent I.R. drawbar springs at Rs. 19,968 and 4,500 Spencer patent drawbar springs for I.R.C.A. drawgear at Rs. 4,312.

The Chief Controller of Stores, Indian Stores Department (Engineering Section), Simla, invites tenders, receivable by August 27, for three electrically-driven multistage horizontal spindle centrifugal pumps and motors and a switchboard.

The Chief Controller of Stores, Indian Stores Department (Miscellaneous Section), Simla, invites tenders, receivable by August 27, for one year's requirements of track tools, and, receivable by September 4, for one year's requirements of steel files for the State Railways.

Tenders are invited on a rupee basis, receivable by the Agent, North Western Railway of India, Lahore, by September 20, for the supply of grinding wheels. Tenders are also invited, receivable by September 3, for 600,000 dogspikes required during the period October 1-December 31, 1934.

The Indian Stores Department is calling for tenders, to be presented in Simla by September 24, for buffer parts required by the Eastern Bengal Railway, and including standard buffer cases, buffer heads with plungers, spindles, nuts and cotters, springs, washers, dividing plates and cast steel heads for buffer couplings. Firms desirous of offering material of United Kingdom manufacture can obtain the further details of this call for tenders from the Department of Overseas Trade.

The Indian Stores Department is calling for tenders, to be presented in Simla by August 27, for the supply of 1,500 axles with 10 in. by 5 in. journals, 16 tons (B.G.) Further details can be obtained from the Department of Overseas Trade.

The Agent, East Indian Railway, 105, Clive Street, Calcutta, invites tenders, receivable by September 3, for the supply of electrically and belt-driven machinery and plant.

Tenders are invited by the Controller of Stores, B.B. & C.I. Railway, Bombay, receivable by September 10, for permanent way tools required for the period October 1, 1934 to September 30, 1935.

The Egyptian State Railways Administration is expected soon to invite tenders for the supply of twenty locomotives and a hundred goods wagons.

The Egyptian State Railways Administration has recently placed orders as follow :—

Fried Krupp A.G., through J. F. Melling Limited: Wagon axles. (Price £355 delivered f.o.b. Rotterdam or Antwerp, order No. 21,173); and steel (Price £177 15s.; delivered f.o.b. Rotterdam, order No. 757).

British Power Railway Signal Co. Ltd.: Signalling materials (Ref. No. E.S.R. 24.59, items 1, 2, 4, 11-19, 21-23, 25-32, 34-39 and 41-45, total cost £2,324 4s. 7d. delivered f.o.b. London).

Richard Johnson & Nephews Limited: Signalling materials (Ref. No. E.S.R. 24.57, items 5 and 40, total cost £234 5s. 11d., delivery f.o.b. Manchester, Liverpool or Birkenhead).

Wellington Tube Works Limited: Signalling materials (Ref. No. E.S.R. 24.59, item 33, total cost £80 16s. 8d. delivered f.o.b. English port).

The Viacão Ferrea do Rio Grande do Sul is calling for tenders, to be presented in Porto Alegre by October 2, for the supply, c.i.f. Rio Grande, of 60 axles mounted on wheels for railway trolleys. Firms desirous of offering wheels and axles of United Kingdom manufacture can obtain the further details of this call for tenders from the Department of Overseas Trade.

OIL TANK TRAINS IN COLLISION.—Two trains of oil tank wagons collided near Recia, Roumania, on the line from Bucharest to Craiova, on August 9. It is reported that six railway officials lost their lives as a result of the trains catching fire.

THE SOUTH AFRICAN HARBOURS.—The total quantity of cargo landed at the principal ports during May, 1934, aggregated 235,092 tons, an increase of 34,733 tons compared with the corresponding month of the previous year. The volume shipped, on the other hand, decreased by 2,485 tons.

TOURISTS TICKETS IN CHINA.—The Chinese Ministry of Railways has, according to the *Chinese Economic Bulletin*, approved the proposal of the authorities of the Hupeh-Hunan section of the Canton-Hankow Railway for the issue of tourist tickets for round trips over the Peiping-Hankow, Lung-Hai, Chengting-Taiyuan, Peiping-Suiyuan, Peiping - Liaoning, Tientsin - Pukow, Kiaochow-Tsinan and Nanking-Shanghai Railways.

OFFICIAL NOTICES

THE MADRAS & SOUTHERN MAHRATTA RAILWAY CO. LTD. invite Tenders for :—

(1) 122 STEEL TYRES FOR LOCOMOTIVES—BROAD GAUGE.

(2) 2,100 STEEL BOILER TUBES AND 18 STEEL ARCH TUBES.

Tenders are due in on Tuesday, 4th September, 1934, by 2 o'clock p.m.

Tender Forms are obtainable at address below, fee HALF-GUINEA each, *which will not be returned.*

The Directors do not bind themselves to accept the lowest or any Tender.

Company's Offices :—

25, Buckingham Palace Road, Westminster, London, S.W.1.

ENGINEER required for work on Continent. Good knowledge and practical experience of Railway Air Brakes required. Experience of fitting brake rigging most desirable. When replying state age and give fullest particulars of qualifications, etc.—BOX No. 11, c/o THE RAILWAY GAZETTE, 33, Tothill Street, Westminster, London, S.W.1

OFFICIAL ADVERTISEMENTS intended for insertion on this page should be sent in as early in the week as possible. The latest time for receiving official advertisements for this page for the current week's issue is noon on Thursday. All advertisements should be addressed to :—*The Railway Gazette*, 33, Tothill Street, Westminster, London, S.W.1.

Universal Directory of Railway Officials and Railway Year Book

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Transpyrenean Railways

Within the past few years considerable progress has been made in linking up the French and Spanish railways by new lines through the Pyrenees, and at the present time it is possible to travel by rail between the two countries by four main routes, namely :—

(i) Bordeaux, Hendaye—Irun (west coast)
(ii) Toulouse, Cerbere—Port-Bou (east coast).
(iii) Pau, Somport tunnel, Saragossa.
(iv) Toulouse, La Tour—Puigcerdá, Barcelona.

The first two were inaugurated in 1864 and 1878 respectively and still carry the bulk of express passenger traffic as they give the fastest, most frequent and most comfortable services. Some interesting details of the two newer and lesser known routes are contributed to the *L.N.E.R. Magazine* by Mr. H. Donington Smith, who recently went to Spain by the Somport route and returned via Puigcerdá, and the following notes are extracted from his account.

As far back as 1885 a committee was inquiring into the possibility of further railway development connecting these two countries traditionally friendly and willing to co-operate, but separated by the natural barrier of the Pyrenees; However, 20 years elapsed before it was finally decided to complete (iii) and (iv), and 10 years was estimated as necessary for linking up the existing French southward ramifications with the Spanish northern extremities. Actually the Somport tunnel was officially opened in 1928, and in 1929 Barcelona was 66 miles nearer Toulouse.

The Somport Route

The problem was how best to build a single track between the last French station at Bedous (1,310 ft.) and the Spanish station at Jaca. The geographical frontier of the Pyrenees is generally the political frontier; but at least two-thirds of the Pyrenees are in Spain, owing to the steep slopes on the French side. The French task was therefore the more difficult and was finally accomplished by means of 14 tunnels, the line rising 2,662 ft. in about 18 miles, an average gradient of about 1 in 35. The maximum gradient on the French side is 1 in 23: in Spain it nowhere exceeds 1 in 50, and steam traction is still employed.

Of the French tunnels 12 are fairly short, some being the better alternative to throwing a viaduct across the mountain torrent (River Aspe) to get the advantage of an outer bend. In any case it was found necessary to bridge this river six times. One tunnel is spiral and the other is the 5-mile Somport tunnel that leads out to the international station of Canfranc (3,817 ft.). Canfranc is 3 miles south of the frontier and the station seems very big for present needs, though in proportion with the surrounding mountains. By reason of the broad Spanish gauge (5 ft. 6 in.), through coaches cannot, of course, be run.

From Canfranc to Jaca there is a drop of some 1,300 ft. in 16 miles, average gradient about 1 in 65. There are no tunnels of any consequence. The gradient of the river bed (River Aragon) is steady and not excessive. Three trains a day run in each direction and their arrival in each station is quite a social event in the lives of a sociable people.

The Puigcerdá Route

Barcelona is an efficient as well as a delightful place, and the electrified railway north to Ripoll is worthy of the relatively energetic Catalan. From Ripoll (2,200 ft.) the task remained to connect to Ax-les-Thermes (2,300 ft.), a distance of 58 miles, 32 miles being Spanish line. As the geographical frontier is here well into France the gradients are again greater there. Nevertheless the long Spanish tunnel of Tosas was imperative. On emerging you find yourself in the plateau of the Cerdagne, as large as a small English county. Puigcerdá is the capital of Spanish Cerdagne. Thereafter you cross into French Cerdagne. From the frontier station of La Tour de Carol (4,035 ft.) another interesting mountain line goes east via Vernet to Perpignan. Beyond La Tour the Ax-les-Thermes plunges into the 3¼-mile Puymorens tunnel and reaches a height of 5,200 ft. On emerging there is a steady descent through L'Hospitalet, the station for Andorra, the tiny Pyrenean republic. The line from Ax to L'Hospitalet was not easy to build, as the River Ariège is very swift. Eleven tunnels were required, including the spiral tunnel of Saillens, about a mile long and raises the line through 200 ft.—an average gradient of about 1 in 25.

A third transpyrenean line remains unfinished between St. Girons and Lerida. Less than half of the 124 miles is completed and many years will elapse before the Col de Salau is mastered. By then the merits of the undeveloped Spanish Pyrenees as holiday grounds will be recognised, thanks largely to the existing two routes, which were made possible by hydro-electrification at 1,500 volts d.c.

[References to the proposals for building new railways in Spain—in which the Lerida to Santa Girons line is classed as one of those of secondary importance—were made on page 1017 of THE RAILWAY GAZETTE for June 8 last, where also appeared a map of the existing and proposed railways of Spain. ED. *R.G.*]

APPLICATION OF ALLOYING METALS : TUNGSTEN, VANADIUM, MOLYBDENUM. —We have received from High Speed Steel Alloys Limited, Ditton Road, Widnes, an illustrated booklet describing the firm's exhibit at the Birmingham section of this year's British Industries Fair. Examples of the use of these metals for various engineering purposes were displayed on the stand, together with tables showing the results of tests under working conditions. The booklet refers to the interest created by the introduction of molybdenum nickel chromium steels in the construction of the Southern Railway "Lord Nelson" class locomotives in 1926. Similar practice was followed in the reciprocating parts of the L.M.S.R. "Royal Scot" engines, and have recently been applied by the Vulcan Foundry Co. Ltd. in a number of locomotives built for the Indian State Railways.

Railway Share Market

Stock and share markets have shown an activity very uncommon at this period of the year. Home railway stocks have continued to experience the improvement in sentiment resulting from the agreement reached in the wages dispute. The removal of this uncertainty from the operations of the companies for the current half of the year has released a large amount of investment buying of the prior charges of the four big railway companies, which has been reflected in a jump in prices. The rise in the junior stocks was substantial and amounted to an average of 12 per cent. in capital value in the course of about five working days. The marked variation in the rise was caused presumably by the technical market conditions in certain stocks of which jobbers or some operators were "short." The percentage rise was largest in L.M.S.R. 1923 preference stock and in L.N.E.R. preferred ordinary, and the smallest was in G.W.R. ordinary and Southern preferred ordinary, although the two latter stocks are regarded as possessing the best dividend prospects for the current year among all the junior stocks.

There is now a disposition to mark time pending further indications in the weekly traffic receipts of the extent to which the additional sum required to meet the larger wages bill is being met. It is probable, therefore, that prices will show relatively small movements for the next few weeks, although acquisition of the prior charge stocks may go on. There is still a moderate amount of L.M.S.R. 4 per cent. debenture stock to be obtained at 103½, at which the yield is about 3⅞ per cent., and also a moderate line of L.N.E.R. 4 per cent. debenture stock at a slightly lower price to give a yield of around £3 18s. per cent. Both debenture stocks are regarded as adequately covered by net revenue and provide for the investor about 7s. to 8s. per cent. more than can be secured on British Government loans. The inclusion of one of the higher yielding preference stocks, such as Southern 5 per cent. preference stock, of which a line is on offer at 112¼, yielding £4 9s. per cent., would have a "sweetening" effect on the average income of a gilt-edged list of securities.

London Transport C stock retained its improved price of 80 despite deduction of the dividend, and there is a market tendency to think the stock may get more than 3 per cent. in respect to the year ended June 30, notwithstanding absence of any suggestion in the official dividend announcement that an additional distribution will be made. In foreign railways Argentine issues have fluctuated with the rise, and reaction in the peso exchange and the price of wheat.

Traffic Table of Overseas and Foreign Railways Publishing Weekly Returns

	Railways	Miles open 1933–34	Week Ending	Traffics for Week: Total this year	Traffics for Week: Inc. or Dec. compared with 1933	No. of Week	Aggregate Traffics to Date: Totals: This Year	Aggregate Traffics to Date: Totals: Last Year	Aggregate Traffics to Date: Increase or Decrease	Shares or Stock	Prices: Highest 1933	Prices: Lowest 1933	Prices: Aug. 15, 1934	Prices: Yield % (See Note)
				£	£		£	£	£					
South & Central America.	Antofagasta (Chili) & Bolivia	830	12.8.34	15,610	+ 5,480	32	435,050	326,310	+ 108,740	Ord. Stk.	26	11 3/4	24 1/2	Nil
	Argentine North Eastern..	753	11.8.34	7,651	— 3,941	6	46,962	64,006	— 17,044	,,	14 1/2	5	8	Nil
	Argentine Transandine ..	111	—	—	—	—	—	—	—	A. Deb.	55	40	50	6
	Bolivar	170	July, 1934	5,100	— 150	30	43.850	47,250	— 3,400	6 p.c. Db.	10	5	10	Nil
	Brazil	—	—	—	—	—	—	—	—	Bonds.	15	11	12 1/2	4
	Buenos Ayres & Pacific ..	2,806	11.8.34	70,294	— 9,381	6	423.731	523,069	— 99,338	Ord. Stk.	26	9 7/16	12 1/2	Nil
	Buenos Ayres Central ..	190	17.6.34	$9,708	— $724	51	$475,901	$468,897	+ $7,004	Mt. Db.	30	10	21	Nil
	Buenos Ayres Gt. Southern	5,085	11.8.34	126,079	— 16.425	6	752 423	988,705	— 236,282	Ord. Stk.	44 1/2	21 1/2	30	Nil
	Buenos Ayres Western ..	1,926	12.8.34	46,056	— 5,258	6	268,245	337,369	— 69,124	,,	34 1/2	15 5/4	23 1/2	Nil
	Central Argentine ..	3,700	11.8.34	138,428	— 1,379	6	788.281	897,891	— 109,611	,,	28 1/2	15	19	Nil
	Do.	—	—	—	—	—	—	—	—	Dfd.	18	10	9 1/2	Nil
	Cent. Uruguay of M. Video	273	11.8.34	13.957	+ 208	6	83,807	85.689	— 1,882	Ord. Stk.	20	8	10 1/2	Nil
	Do. Eastern Extn.	311	11.8.34	3,433	+ 778	6	17,384	15,451	+ 1,933	—	—	—	—	—
	Do. Northern Extn.	185	11.8.34	1,450	+ 114	6	9,949	9,870	+ 79	—	—	—	—	—
	Do. Western Extn.	211	11.8.34	1,231	— 31	6	6,703	7,405	— 702	—	—	—	—	—
	Cordoba Central	1,218	11.8.34	35,640	— 8,640	6	215,780	261,180	— 45,400	Ord. Inc.	9 1/4	2 1/2	4 1/2	Nil
	Costa Rica	188	May, 1934	16.659	— 2,382	48	197,823	213,331	— 15,508	Stk.	29	20	27 1/2	7 1/4
	Dorada	70	July 1934	9,000	—	30	69.200	53,100	+ 16,100	1 Mt. Db.	76 1/2	68 3/4	105	5 11/16
	Entre Rios	810	11.8.34	10.218	— 3,855	6	63 005	84,472	— 21,467	Ord. Stk.	26 1/2	9	14 1/2	Nil
	Great Western of Brazil ..	1,082	11.8.34	5,900	— 900	32	243,700	313,500	— 69,800	Ord. Sh.	23/6	1/2	5/8	Nil
	International of Cl. Amer.	794	June, 1934	$253,322	— $123,148	26	$2,719,995	$2,658,881	+ $61,114	—	—	—	—	—
	Interoceanic of Mexico ..	—	—	—	—	—	—	—	—	1st Pref.	1/2	1/16	1/8	Nil
	La Guaira & Caracas ..	22 3/4	July, 1934	4.455	+ 1,455	30	25,890	39,270	— 13,380	Stk.	16	10	8 1/2	Nil
	Leopoldina	1,918	11.8.34	35,576	+ 6,242	32	756.690	750,493	+ 6,197	Ord. Stk.	20 1/4	10	9 1/2	Nil
	Mexican	483	7.8.34	$199,500	+ $29 300	5	$1.177,300	$994,400	+ $202 900	,,	3	1/2	2 1/8	Nil
	Midland of Uruguay ..	319	July, 1934	9,461	+ 716	4	9,461	8.745	+ 716	Ord. Stk.	2	1	1 1/8	Nil
	Nitrate	401	31.7.34	9.093	+ 6,118	30	155.376	65.610	+ 89,766	Ord. Sh.	78/6	11/16	27/8	Nil
	Paraguay Central	274	11.8.34	4,460	— 430	6	27,420	24.970	+ 2,450	Pr. Li. Stk.	72	49 1/2	70	8 1/2
	Peruvian Corporation ..	1,059	July, 1934	52.617	+ 1,372	4	52.617	51.245	+ 1,372	Pref.	15 1/4	5	10	Nil
	Salvador	100	4.8.34	¢9,221	— ¢4,259	5	¢52.041	¢72,905	— ¢20,864	Pr. Li. Db.	70	66 1/2	70	7 1/8
	San Paulo	1531/2	5.8.34	28.546	+ 2,874	31	947,691	933,603	+ 14,088	Ord. Stk.	102	68	80	5
	Taltal	164	July, 1934	7 040	+ 3,720	4	7,040	3,320	+ 3,720	Ord. Sh.	1 3/4	5/4	1 5/4	5 11/16
	United of Havana.. ..	1,365	11.8.34	17,854	+ 17,499	6	105,441	75,455	+ 29,986	Ord. Stk.	8	2	3	Nil
	Uruguay Northern ..	73	July, 1934	1,056	— 10	4	1,056	1,066	— 10	Deb. Stk.	6	3 1/2	4 1/2	Nil
Canada.	Canadian National ..	23,748	7.8.34	577,122	+ 4,607	31	19,275,127	16,724,009	+ 2,551,118	—	—	—	—	—
	Canadian Northern ..	—	—	—	—	—	—	—	—4 p.c.	Perp. Dbs.	60 1/2	38	66	6 1/16
	Grand Trunk	—	—	—	—	—	—	—	—	4 p.c. Gar.	99 3/4	85	101 1/2	3 15/16
	Canadian Pacific	17,018	7.8.34	477,200	+ 59,400	31	14,062,600	12,591,000	+ 1,471,600	Ord. Stk.	22 1/8	11	14	Nil
India.†	Assam Bengal	1,329	14.7.34	25,657	+ 2.933	15	408,305	330,138	+ 78,167	Ord. Stk.	79	70	79	3 15/16
	Barsi Light..	202	21.7.34	5,100	+ 3,315	16	50,550	55,267	— 4,717	Ord. Sh.	10 1/4	70	100 1/2	6
	Bengal & North Western..	2,112	14.7.34	43.958	+ 4,171	15	805.011	776,481	+ 28,530	Ord. Stk.	292	240	277 1/2	5 1/4
	Bengal Dooars & Extension	161	21.7.34	3.026	— 24	16	39.652	41,293	— 1,641	,,	127	119	125	5 1/8
	Bengal-Nagpur	3,269	14.7.34	103.500	+ 10.850	15	1,774.785	1,587,128	+ 187,657	,,	97 1/4	83 1/2	102 1/8	3 15/16
	Bombay, Baroda & Cl. India	3,072	4.8.34	129,375	+ 14,700	18	2.855.850	2,721,900	+ 133,950	,,	112	107	109 1/2	5 1/2
	Madras & South'n Mahratta	3,230	21.7.34	110,175	+ 5,454	16	1,889,082	1,918,604	— 29,522	,,	127	114 1/4	127 1/2	7 1/16
	Rohilkund & Kumaon ..	546	21.7.34	7,662	— 465	16	166.281	161,656	+ 4,625	,,	260	225	250 1/2	6 1/16
	South India	2,526	14.7.34	82,282	+ 3,414	15	1,254,305	1,206,965	+ 47,340	,,	119 1/2	112	115 1/2	6 3/16
Various.	Beira-Umtali	204	May, 1934	58 872	+ 10.741	34	399,848	322,728	+ 77,120	—	—	—	—	—
	Bilbao River & Cantabrian	15	July, 1934	2,522	+ 180	30	12,982	10,405	+ 2,577	—	—	—	—	—
	Egyptian Delta	621	31.7.34	6.323	+ 900	17	65.178	61,780	+ 3,398	Prf. Sh.	15 1/32	15/4	17/8	5 5/16
	Great Southern of Spain ..	104	4.8.34	1,942	+ 415	31	63,574	61.319	+ 2,255	Inc. Deb.	4	3	3 1/2	Nil
	Kenya & Uganda	1,625	Mar., 1934	240.520	+ 21,064	12	638,137	606,192	+ 31,945	—	—	—	—	—
	Manila	—	—	—	—	—	—	—	—	B. Deb.	53	33 1/2	36	3 1/4
	Mashonaland	913	May, 1934	106 858	+ 32,902	34	731,020	502,675	+ 228,345	1 Mg. Db.	91 3/4	42	93	6 5/8
	Midland of W. Australia ..	277	June, 1934	12 031	— 599	52	158 207	156,705	+ 1,502	Inc. Deb.	89	70	97 1/2	6 1/4
	Nigerian	1,905	30.6.34	19,354	— 4,675	13	336.272	300,601	+ 35,671	—	—	—	—	—
	Rhodesia	1,538	May, 1934	171,670	+ 38.452	34	1,236,395	915,804	+ 320,591	4 p.c. Db.	98 1/2	80 3/4	102	3 15/16
	South African	13,180	21.7.34	491,394	+ 51 911	16	7,766.299	6.849,556	+ 916,743	—	—	—	—	—
	Victorian	6,172	May, 1934	755,392	+ 15.381	48	8,479,194	8,811.604	— 332,410	—	—	—	—	—
	Zafra & Huelva	112	June, 1934	10,078	— 121	26	65,801	62,326	+ 3,475	—	—	—	—	—

NOTE.—Yields are based on the approximate current prices and are within a fraction of 1/16.

† Receipts are calculated @ 1s. 6d. to the rupee. § ex dividend. Salvador receipts are in currency.

The variation in Sterling value of the Argentine paper peso has lately been so great that the method of converting the sterling weekly receipts at the par rate of exchange as proved misleading, the amount being overestimated. The statements from July 1 onwards are based on the current rate of exchange and not on the par value.